Medieval Masculinities and Bodies

Studies of gender relations based on the analysis of human skeletal remains from the monastic burial grounds at Skriðuklaustur, Iceland, and Västerås, Sweden

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Dissertation towards the degree of Doctor of Philosophy
2022

UNIVERSITY OF ICELAND
SCHOOL OF HUMANITIES
FACULTY OF HISTORY AND PHILOSOPHY

Sagnfræði- og heimspekideild Háskóla Íslands
hefur metið ritgerð þessa hæfa til varnar
við doktorspróf í fornleifafræði

Reykjavík, 8.apríl 2022

Sverrir Jakobsson
varadeildarforseti

Faculty of History and Philosophy
at the University of Iceland
has declared this dissertation eligible for a defence
leading to a Ph.D. degree in Archeology

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To Artur & Ralf

Abstract

This compilation thesis is situated at the intersection of the scholarly fields of medieval masculinities and the bioarchaeology of identities. The aim is to explore bodily aspects of medieval masculinities through the analysis of human skeletal remains from two medieval monastic sites, the Augustinian monastery Skriðuklaustur in Iceland (1493-1554), and the Dominican priory in Västerås, Sweden (1244-1528). A total of 461 individuals were analysed, using standard osteological methods (Buikstra and Ubelaker, 1994).

Theories of masculinities have been developed with reference to modern gender relations, but scholars have found them relevant to medieval contexts (e.g. Beattie and Fenton, 2011; Hadley, 1999; Hodgson et al., 2019; Karras, 2003; Kiefer, 2009; Lees et al., 1994; Murray, 1999; Thibodeaux, 2010). They have to be applied with caution, however, as medieval society and gender relations differ in many ways from their contemporary equivalents (Fletcher, 2011; Karras, 2003:9-10). Connell's (2005) definition of masculinity as a configuration of gender practices has been used in the thesis. Defining masculinity as a form of practice enables a bioarchaeological approach. The skeleton is plastic, and so enactments of masculinity can leave identifiable marks (Sofaer, 2006), such as specific patterns of entheseal changes, joint disease or trauma.

The four case studies in the thesis address the topics of diet, physical violence, performance in battle, and ability and appearance. The results indicate similarities and mutual influence between different masculinities, but also differences that could be detected through osteological analysis. The carbon and nitrogen stable isotope analysis of a sample of sixteen males and six females buried in Västerås revealed no significant differences in diet between the sexes, between adults and children (represented by dentin samples from the second molar), or between males of higher and lower status. The results suggest that fresh water fish were an important part of the diet, and that both clerics and laity took part in religious fasting (Paper I). There was a significant difference in patterns of weapon-related trauma, however. Lay males were more exposed to trauma than clergy and females. This particularly applied to males of high social standing, and those with battle experience (Paper II). There were also individual differences in gender performance, and some individuals may have transgressed the norms of ideal behaviour, such as ignoring rules of fasting or attacking defenceless victims.

At the same time as the body is shaped by enactments of gender, the way gender can be enacted is conditioned by the skills and abilities of the body. Changes in the body can result in changed gender practices, and a loss of ability could lead to a crisis of masculinity (Shilling, 2004). This is exemplified in Paper III, on warrior masculinity, by weapon-related trauma and the risk of losing the ability to perform in battle, and in Paper IV, on clerical masculinity, through antemortem tooth loss and the risk of becoming irregular due to altered appearance and speech impairments.

Ágrip

Hin klerklega ásýnd: Kynjafræðileg rannsókn byggð á greiningu mannabeina frá munkaklaustrunum á Skriðu í Fljótsdal og í Västerås í Svíþjóð

Þessi ritgerð er staðsett á mótum tveggja fræðasviða, annars vegar karlmennsku og hins vegar mannabeinafræði. Markmiðið er að kanna líkamlega þætti ímynda karlmennsku á miðöldum með hliðsjón af greiningu beinagrinda sem grafnar voru upp úr kirkjugörðum tveggja munkaklaustra, þ.e. Ágústínusarklaustursins á Skriðu í Fljótsdal (1493–1554) og Dóminíkanaklaustursins í Västerås (1244–1528). Rannsóknin tók mið af greiningu 461 beinagrinda sem greindar voru með hefðbundnum mannabeinafræðilegum aðferðum úr kirkjugörðunum tveimur.

Enda þótt kenningar um karlmennsku taki alla jafna mið af kynjahlutverkum í nútíma, ber fræðimönnum saman um að vel megi beita þeim við rannsóknir á miðöldum. Þó verður að hafa í huga þegar stuðst er við samtíma kenningar um karlmennsku í miðaldasamfélögum að tengsl og samskipti kynjanna voru þá á margan hátt frábrugðin þeim sem þekkist nútímasamfélögum. Í ritgerðinni hefur því verið stuðst við skilgreiningu Connell (2005) á karlmennsku sem ákveðinni stöðu innan kynbundinna hlutverka. Þessi skilgreining gerir mannabeinafræðilegu nálgunina mögulega, því staðreyndin er sú að beinagrindur eru lifandi, síbreytilegur vefur og því geta einkenni karlmennsku skilið eftir sig auðkennanleg merki á þeim, s.s. vegna sjúkdóma eða eftir áverka.

Kjarni ritgerðarinnar byggir á fjórum tímaritsgreinum þar sem fjallað er um mataræði (grein I), líkamlegt ofbeldi (grein II), framgöngu í bardaga (grein III) og loks hæfni og útlit (grein IV). Niðurstöðurnar bentu til líkinda og gagnverkandi áhrifa milli mismunandi karlmennskuímynda í báðum klaustrunum sem hér voru til rannsóknar en þegar sértækum mannabeinafræðilegum greiningum var beitt á efniviðinn kom einnig í ljós að greinanlegur munur var milli sömu karlmennskuímynda. Ísótópagreiningar á sýnum sem tekin voru úr sextán beinagrindum karla og sex beinagrindum kvenna sem grafin voru í Västerås leiddu svo dæmi sé tekið í ljós að munur var á mataræði fólks eftir kyni, aldri, stétt eða stöðu. Niðurstöðurnar leiddu ennfremur í ljós að fiskmeti var mikilvægur hluti af mataræði í klaustrunum tveimur en sá siður að fasta á kjöt hafði verið stundaður jafnt af klerkum og leikmönnum (grein I). Þegar kom að vopnatengdum áverkum var hins vegar skýr munur á milli vígðra og óvígðra karlmanna. Karlkyns leikmenn, einkum þeir sem höfðu reynslu af bardaga eða komu úr efri stéttum samfélagsins, voru mun útsettari fyrir vopnatengdum áverkum en klerkar og konur (grein II). Þá kom einnig fram greinanlegur munur á kynbundnum venjum en líklegt er að sumir karlmenn hafi hundsað ríkjandi reglur, til dæmis með því að fara á svig við föstur eða bann við þátttöku í bardaga. Bent skal á að á sama tíma og líkaminn er mótaður reglum hvers kyngervis, geta þessar sömu reglur verið mótaðar af líkamlegri hæfni og getu. Líkamlegar breytingar geta því leitt af sér breytingar á kynbundnum venjum og ef slíkar breytingar fela í sér skort á hæfni, getur það leitt til einhvers konar karlmennskukreppu. Slíkur skortur á hæfni kemur fram í grein III þar sem fjallað er um karlmennskuímyndir í bardaga og hættuna á því að missa bardagahæfni. Í grein IV eru

karlmennskuímyndir klerka skoðaðar og sjónum beint að tannmissi og þá hvernig sú skerðing geti leitt til breytinga á útliti og málhelti.

Translation by Steinunn Kristjánsdóttir and Andri M. Kristjánsson

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Figures and photos by Elin Ahlin Sundman, if no other author is indicated.

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Preface

Acknowledgements

First of all, I would like to thank the doctoral committee for their help and support. My supervisor Steinunn Kristjánsdóttir was the one who first introduced me to Icelandic archeology during the excavation of Skriðuklaustur, and encouraged me to apply for my doctoral studies at the University of Iceland. Over the years, Steinunn Kristjánsdóttir, together with the other members of the committee, Sólveig Anna Bóasdóttir and Anna Kjellström, has helped me with everything I could ask for, from discussing the dissertation to solving practical issues. Without them, this dissertation would not have been possible.

I would also like to express my gratitude to the museums that curate the collections of human remains that I have studied. At the National Museum of Iceland, Freyja Hliðkvist Ómarsdóttir Sesseljudóttir and Ármann Guðmundsson have helped me to access the collections from Skriðuklaustur. At Västmanland läns museum, Carl-Magnus Gagge, and later Jennie Schaeffer have given permission to analyze and sample the material from Västerås. Barbro Johansson helped me to obtain archival information about the excavation. Anna Bratås and Anna Blom Allalouf invited me to present the research to the public. Many thanks also to the City Antiquarian Jan Melander, who has given me a free workplace in the City Hall of Västerås, and access to the human remains from the Västerås priory, that rest in a crypt under the City Hall, and has helped me with literature and funding. In Västerås, I have also received invaluable help from Clas Lundberg, who told me about the excavation of the Västerås priory, where he participated in the 1950s.

I am grateful for the support I have received from Háksóli Íslands, and fellow doctoral students. In particular, I would like to thank Joe Walser for many interesting discussions about Skriðuklaustur and the analysis of the human remains. I am grateful that the project *Disability before Disability*, led by Hanna Björg Sigurjónsdóttir, funded my participation in the conference *Experiences of Dis / ability from the Late Middle Ages to the Mid-Twentieth Century* in Tampere 2019. Many thanks to the lecturers and participating doctoral students in the *Doctoral Schoool in Corporeality in Theory and Practice*, coordinated by Karin Sennefelt, at the Faculty of Humanities, Stockholm University. Thanks to Markus Fjellström, who not only carried out the analysis of the stable isotopes, but also took the time to explain and discuss the results. Thanks to Marieke Ivarsson-Aalders, Clara Alfsdotter, Anne-Marijn van Spelde and Valerie Palmowski in the osteology book club, for all discussions about osteological theory and method. Finally, a loving thank you to my family – Mattias, Artur and Ralf – who have supported me over the years, and even moved to Iceland for a while so that I could carry out this research project.

Funding

2013 University of Iceland Research Fund (research grant)
2013 Berit Wallenberg Foundation (grant for scientific analysis)
2013 Västerås stad (grant for scientific analysis)
2014 University of Iceland, Travel Grants of the Research Fund (travel grant)
2015 Berit Wallenberg Foundation (grant for scientific analysis)
2016 Västerås stad (grant for scientific analysis)
2018 Berit Wallenberg Foundation (grant for scientific analysis)
2018 Västerås stad (grant for scientific analysis)
2019 Helge Ax:son Johnson foundation (research grant)
2019 Letterstedtska (travel grant)
2019 Icelandic Research Fund, through the Disability before Disability project (travel grant)
2021 University of Iceland School of Humanities Education Fund (research grant)

1. Introduction

1.1 Medieval masculinities and the body

Medieval gender relations is a growing field of research, and include a multitude of studies on medieval masculinities. Researchers from various disciplines, such as history, literature and archaeology, have taken an interest in the subject. This study aims to contribute to this vibrant field of research, analysing human skeletal remains from two medieval monastic sites, Skriðuklaustur in Iceland and Västerås in Sweden, using bioarchaeological methods. The study uses this approach to focus on the embodiment of masculinity, and how the body was used to enact masculinity. Masculinity refers to qualities associated with men – things regarded as characteristic of men, but not necessarily what men are actually like. It is a modern concept, but has successfully been applied to analyses of medieval gender relations in numerous studies over the past decades. This study follows Connell's definition of masculinity as something done (Connell, 2005:72). This means that masculinity is seen as a form of activity, rather than an innate trait in an individual. While this means that you don't have to be a biological male to be able to perform masculinity, the focus of the study is on the masculinity of medieval men.

Earlier research has shown great variation in the masculinity of different groups of men in medieval Europe. Masculinity intersects with many other aspects of identity, such as age, health and profession. One major divide in masculinities in medieval Europe was between clerics and laymen. Clerics of higher orders were not allowed many of the defining features of lay masculinity, such as marital sex, providing for one's family, or carrying and using weapons (Smith, 2011:43). Obviously, such rules were occasionally broken, but they also had a great impact on the ways masculinity was enacted by medieval men.

The body has been shown to play an important role in masculinity in many contexts, including medieval Europe. An ideal masculine body (whatever that means in the specific context) could be used to perform masculinity, and to dominate women and other men. Bodily abilities could facilitate or limit the ways masculinity could be enacted. At the same time, the activities engaged in to enact masculinity had an effect on the body, including the skeletons of individuals, as bone is plastic and adapts (Sofaer, 2006). This means that not only the biological sex of an individual, but also gendered activities can be studied in human skeletal remains.

1.2 Outline of the thesis

This thesis consists of a compilation of four journal articles, covering different aspects of medieval masculinities and bodies, and an introductory chapter summarising and discussing the results from the four articles:

1. The first section is a short introduction to the subject, presenting the aims of the research project, and the questions addressed in the four papers.

2. The second section introduces the source materials. The selection of materials is described, and the criteria for including individuals in the study are presented. This is followed by a presentation of the monastic sites, Skriðuklaustur and Västerås.

3. The third section describes the theoretical background and situates the thesis within the fields of medieval masculinities and the bioarchaeology of identities. Theories of masculinities and gender, and their application in a medieval context, and specifically to an analysis of human skeletal remains, are presented.

4. The fourth section gives a brief account of the methods applied, and comments on some of the limitations and ethical issues of the methods.

5. The fifth section summarizes the results from the four journal articles.

6. The sixth section discusses the results from the four articles, and also addresses some issues and examples that had to be left out of the articles for the sake of brevity. The results of the four studies are brought together under the following topics: common features, diversities, transgressions, and the changeability of masculinities.

7. The conclusions are presented in the seventh section, and some topics for future research are suggested.

The thesis ends with a bibliography, followed by two appendices listing the individuals from Skriðuklaustur and Västerås included in the study.

1.3 Importance of the study within the field, and in a wider context

This thesis is situated at the intersection of scholarship on medieval masculinities and the bioarchaeology of identities. The research on medieval masculinities has primarily used other source materials – such as literature, historical documents or archaeology – and human skeletal remains are still an underused source of information. Human skeletal remains have, however, been examined in bioarchaeological studies of gender for decades (for an overview, see Buikstra and Scott, 2010:29-39). The present study thus combines the theories of masculinity with established osteological methods and previous knowledge of medieval masculinities in an analysis of skeletal assemblages from two major monastic sites from medieval Northern Europe, Skriðuklaustur (Iceland) and Västerås (Sweden). Human skeletal remains have been described as uniquely suited to studying identities such as gender (Knudson and Stojanowski, 2010). Osteological analysis enables us to approach the lived experience and embodiment of gender more closely, and the ways masculinities were enacted in everyday life can be compared to the sometimes highly-set standards and cultural ideals of the male body and masculine behaviours, known from earlier research using other source materials.

Medieval masculinities are also relevant to the contemporary discussion of gender. Presentism, and contemporary gender constructs projected on the past, and in turn used to legitimise and naturalise present norms, are a well-known problem (Moen, 2019). Sari Katajala-Peltomaa (2020) suggests that "The problem with imagined masculinities of the past is the rigid idea of men and manhood it creates. The imagery of 'medieval' men created by popular culture supports heteronormativity and, in the worst case, toxic masculinity". She criticises the popular view of the medieval man as a muscular knight covered in sweat and blood as an imagination based on contemporary concepts of masculinity. Instead she presents a short glimpse of the diversity of medieval masculinities, with a focus on male appearance and self-presentation. I have a similar intent with this research – to present multifaceted alternatives to the popular imagination of medieval masculinity. While knights and violence were certainly a part of medieval masculinity, it is important not to romanticise them. Fighting for a just cause, defending the defenceless, showing bravery and strength was just one side of the coin. The human skeletal remains examined in this research project give plentiful examples of the other side – the horrifying outcome of enacting masculinity through violence – injury, impairment and death. The skeletal remains also inform us of other aspects of medieval masculinities, such as health, appearance and diet, and the analysis of human skeletal remains can thus both contribute to the scholarly field of study, and hopefully at the same time nuance the popular conceptions of medieval masculinity. There is not, and was not in the medieval period, one single way to enact masculinity.

While this thesis explores the diversity and fluidity of medieval masculinities, many aspects appear strangely familiar, such as the association between masculinity and meat eating. Derrida (1991) has discussed the link between masculinity, power and the consumption of meat, describing it as carno-phalogocentrism. In contemporary western culture, the unmarked subject – the privileged norm – is a meat-eating, adult, heterosexual, sexually active, masculine man. Meat-eating is seen as part of a larger structure of devouring – literally or figuratively – everything that one has the power over. The head of state has to be an "eater of flesh" in both senses (Derrida, 1991:114).

1.4 Aims and research questions

The overarching aim of the thesis is to explore bodily aspects of medieval masculinities through the analysis of human skeletal remains. This is done in a collection of four case studies on different topics, addressing the following research questions:

1. Given the fasting rules and attitudes towards meat eating in different medieval masculinities, can differences in diet between males and females, and/or between different groups of males, be detected through stable isotope analysis (based on a sample from the Dominican priory in Västetrås)?

2. Given the rules and attitudes to the use of interpersonal physical violence in different medieval masculinities, can different patterns of weapon-related trauma be identified

in males and females, and/or different groups of males (different ages, socioeconomic standing or religious status as cleric/layman)?

3. Given that physical violence has been proposed as a way to enact masculinity in medieval Europe, what types of weapon-related trauma can be identified, and are they compatible with a use of violence which could have been considered honourable and an enactment of masculinity?

4. Considering ideals of bodily perfection, and the importance of speech in clerical masculinities, which oral health problems can be identified in clerics at Skriðuklaustur, and what effect could these oral health problems have had on their masculinities? Who lost teeth antemortem? Which teeth were lost?

These questions are the starting point of the discussion. If differences between different groups of men are observed, how can this be understood, in relation to medieval masculinities?

2. Materials

2.1 Introduction

The selection of materials included in the study was informed by the research questions. Well preserved collections of medieval human skeletal remains were required in order to study bodily manifestations of the enactment of different masculinities. It was also essential that different groups were represented in the materials, including different sexes, and individuals of various socioeconomic and religious statuses. Monastic sites provide such an opportunity, as their cemeteries include burials of both the members of the religious communities and lay people. The National Museum of Iceland and Västmanlands läns museum kindly allowed access to the osteological collections from the two sites included this research project, the Augustinian monastery Skriðuklaustur in Iceland, and the Dominican priory in Västerås in Sweden (Figure 1). Both sites were well suited for the research. They had both been extensively excavated (i.e. a large number of skeletons unearthed), including burials inside the churches, other monastic buildings and cemeteries. With a few exceptions, the human skeletal remains were well preserved. In some ways the two sites are similar, as monastic sites in Nordic countries. Their populations both interacted with lay society and played an active role in their communities, for example though the medical care and burial of patients. In other ways they differ: Skriðuklaustur was located in a rural area, and Västerås was an important harbour city and episcopal see. The different methods of excavation and recording also mean that the documentation is unequal. This means that the materials are not always comparable, but that the types of questions they can address complement one another. With 342 individuals included in the study, the Västerås material is the larger of the two, but there is more detailed information on the archaeological context of the 128 individuals included from Skriðuklaustur.

Figure 1: Map of the Nordic countries, with the location of Skriðuklaustur and Västerås

The criteria for selecting individuals for inclusion in the study were the same for both sites. Individuals were only included if the representation and preservation of bone was considered adequate for an estimation of age and sex to be performed. Highly fragmented individuals, and individuals only represented by scanty bone elements, were omitted. Children and young adolescents where the secondary sex characteristics had not developed were also omitted, (the youngest individuals included are estimated as having been c. 14-16 years of age at death), as were commingled remains. All individuals included in the study are listed in Appendix I (Skriðuklaustur) and Appendix II (Västerås).

2.2 Skriðuklaustur

The Augustinian order originated in the 11th century, when groups of clerics in major churches and cathedrals begun following the Rule of St Augustine. The Augustinian order was established in the Nordic counties, including Denmark, Norway, Iceland and Norse Greenland, during the 12th century. In Iceland it became – together with the Benedictine order – one of the dominant orders (Gallén, 1956; Kristjánsdóttir, 2017, 2021). The first Augustinian monastery in Iceland was founded in Þykkvibær by Þorlákur Þórhallason around year 1168. Others followed in Flatey, Helgafell, Viðey and Möðruvellir during the 12th and 13th centuries. Skriðuklaustur was located in the eastern quarter of Iceland, and was the last to

be established (Kristjánsdóttir, 2017). The monasteries and nunneries in Iceland all closed down during the Lutheran reformation, approximately 1541-1554 (Kristjánsdóttir et al., 2014)

Skriðuklaustur, including the monastic buildings, the church and the cemetery, was excavated by Steinunn Kristjánsdóttir during 2000-2012. It is currently the only Icelandic monastery to have been excavated in its entirety. The author participated in the excavation as a field osteologist during the 2011 season. The monastery was founded in 1493, during a period when disasters such as a major volcanic eruption, crop failure and epidemics struck Iceland, and there was a great need for the charity work that a monastery could provide (Kristjánsdóttir, 2016; Walser, 2021). It was founded in a rural area about 150 meters from the Skriða farm in the Fljótsdalur Valley in eastern Iceland, about three kilometres from the parish church at Valþjófsstaður. Until the mid-17th century, there was an important route for travelling and transport between eastern and southern Iceland across the Vatnajökull glacier. Situated by this travelling route, the monastery served as a guesthouse for travellers and pilgrims, but also as a dwelling for the poor, elderly and infirm (Kristjánsdóttir, 2016). In addition to being a centre of Christian worship, findings from the excavation of the site, including the remains of medical plants, vessels for medication, surgical equipment, and buried individuals with severe pathological changes to the skeleton, show that Skriðuklaustur served as a hospital. This is also supported by the find of an effigy of St Barbara, a saint venerated for her protection against diseases (Kristjánsdóttir, 2010, 2012, 2016; Kristjánsdóttir et al., 2014). The monastic complex, covering more than 1500 m^2, included all the functions commonly found in houses belonging to the Augustinian order, and followed international standards for spatial organisation. There were local adaptations, however, including the placement of the church in the south of the monastic complex, and using local building materials, such as stone, turf and driftwood (Kristjánsdóttir, 2010, 2011, 2016) (Figure 2).

Figure 2: Reconstruction of the Augustinian monastery Skriðuklaustur, by Vala Gunnarsdóttir

The monastery, with its hospital and guesthouse, operated only for about sixty years. Following the Lutheran dissolution of the Skáholt diocese in 1541, the residents were allowed to stay until 1554 (Kristjánsdóttir, 2021). There were probably only about five canons during its time of operation, including the prior. There may have been even fewer during the first few years, and the last, after the dissolution of the Skáholt diocese (Kristjánsdóttir, 2012:250-253). In some cases, the names of the canons are known, such as those of the priors. Narfi Jónsson was the first prior. He was succeeded by Þorvarður Helgason, followed by Jón Markússon and finally Brandur Hrafnsson (Kristjánsdóttir, 2012:44). Most people working at the monastery, however, were laypeople. In an earlier study, Walser and colleagues performed stable isotope analysis of oxygen ($\delta^{18}O$) and strontium ($^{87}Sr/^{86}Sr$) on dental enamel samples from 31 individuals buried at Skriðuklaustur to identify geographical origin. The results indicated that the sampled individuals were most likely all of Icelandic origin, although they could have moved within the district – the eastern quarter – coming to Skriðuklaustur for example to find treatment at the hospital (Walser, Kristjánsdóttir et al., 2020).

Figure 3: Plan drawing of the church and cemetery at Skriðuklaustur. Burials included in the study marked in different shades of grey; light grey – benefactors, medium grey – monastic, dark grey – laity, black – patients.

The skeletal remains of 295 individuals were recovered from the church and cemetery of Skriðuklaustur (Kristjánsdóttir, 2012:141). Approximately half the individuals were buried in coffins. Burial location was an important way to mark identity in the medieval period. The location of the burials, in combination with archaeological and osteological findings, was used to identify four different groups of people buried in different areas of the monastery: benefactors, canons, patients and laity (Kristjánsdóttir, 2010, 2012:141-194) (Figure 3). The church was accessible from outside the monastic community, but it was also a privilege to be buried there. This is further emphasised by the findings from the graves. Three out of the four adults buried inside the church were interred with an open book resting on their chests. The church has been interpreted as the burial place of the benefactors. The cemetery east of the church was also a privileged area. Many of the burials were more elaborate than elsewhere, including decorated coffins, and finds of rosary beads, the remains of a pillow, and a golden finger ring. It has been interpreted as the burial area for the canons, however, it was not only the canons who were buried in this area. Burials of females, children, and individuals with severe pathological changes show that other groups were also been buried east of the church, including members of the canons families, as well as patients of the hospital. The burial ground north of the church, including the cloister garden, has been interpreted as the burial place of the patients. The location, between the church and the other monastic buildings, is at the core of the monastic complex, and only accessible to its inhabitants. The patients belong to different ages and sexes, and many display different pathological conditions (Kristjánsdóttir, 2010, 2012). There are indications that patients suffering from the same condition, such as hydatid disease, were buried next to one another (Collins and Kristjánsdóttir, 2011; Kristjánsdóttir, 2011). The southern cemetery, which was accessible to secular society, has been interpreted as the burial place of the lay brothers and sisters who worked in the monastery, and greatly outnumbered the canons. This part of the cemetery could also be used by laity in general, who did not live at the monastery, but died during a short visit, or who paid to be buried there. The demographic profile of the buried population in this part of the cemetery resembles that of other medieval Icelandic cemeteries, and skeletal pathologies are less common than in the individuals buried north of the church (Kristjánsdóttir, 2010, 2012).

The archaeological and osteological results from Skriðuklaustur have been published in a number of articles (Collins and Kristjánsdóttir, 2011; Kristjánsdóttir, 2010, 2011, 2015, 2016; Kristjánsdóttir et al., 2014; Walser et al., 2019; Walser, Gowland, et al., 2020; Walser, Kristjánsdóttir, et al., 2020), books (Kristjánsdóttir, 2012, 2017) and a doctoral thesis (Walser, 2021). The human osteological material has been analysed by different anthropologists and osteologists over the years (Ahlin Sundman, 2011; Brandt, 2010; Collins, 2010, 2011; Hawtin, 2006; Pacciani, 2006, 2008, 2009, 2010), and the reports are available from the home page of the project, https://notendur.hi.is/~sjk/SKR.htm, together with other reports and information on the excavation. The material was reanalysed by the author for the present study. Using the criteria for inclusion presented above, 128 individuals were initially selected. An additional individual, SKR 186, was included in Paper IV, as the main purpose of this study was to examine the oral health of the canons. The preservation of this individual,

interpreted as a canon, was generally poor. However, the preservation of the jaws and teeth was considered adequate.

2.3 Västerås

There was a settlement at Västerås in the Viking Period, and it had become a town before 1000 AD (Ros, 2014). It is located the northern shore of Lake Mälaren in mid-Sweden, by the mouth of the Svartån River. By the end of the 12th century, Västerås had become the episcopal see for the diocese of Västmanland and Dalecarlia (Gustafsson, 1977). It was a harbour town for the export of iron, copper and silver from the inland mining district of Bergslagen (Gustafsson, 1977). As mining expanded in the 13th century, the town grew. The Hanseatic league had a major influence, and stimulated trade (Ros, 2014), and a large immigration of German merchants to Swedish towns, including Västerås, began (Hartzell, 2010). There have been at least three parish churches in Västerås, where the people of the town were buried (Gustafsson, 1977). The earliest church was probably located in the town block Johannes by Bondtorget, where graves date back to the late 11th century (Hartzell, 2010). In the 13th century, this church was replaced by the church of St Ilian, located east of the river, where only a few graves have been found (Ros, 2014). At the church of St Nicholaus, west of the river Svartån, c 200 graves were excavated, but they were reburied without any osteological examination (Hartzell, 2010). Unfortunately, many documents from medieval Västerås were destroyed in a fire in 1569 (*Västerås Stadsbebyggelse*, 1980:13)

Figure 4: Model of the Dominican Priory in Västerås, by Linda Bolander on behalf of the architectural firm Archus Arosia

The *Ordo fratrum praedicatorum*, or Dominican order, attained papal confirmation in 1216. The Dominicans followed the Rule of St Augustine, in the same way as the Augustinian canons. They were one of the four major mendicant orders of medieval Europe. Unlike monasteries, mendicant houses were usually situated in cities and towns, where the friars interacted with secular society, preaching and begging (Lawrence, 1994; Le Goff, 2005). The Dominican priory in Västerås is first mentioned in 1244 (Figure 4). The priory, known as *Conventus Insulensis*, was built on the small island of Munkholmen (Monk's Island), separated from the town by the Svartån and Lillån streams (Folin, 1985). The minimum number of friars at a house was 12, and there were probably never more brothers in Västerås than that (Kumlien, 1971; Lawrence, 1994). New novices in the Dominican priory in Stockholm were usually from wealthy merchant families, but some were also the sons of craftsmen (Hallerdt, 2006), and this could also have been the case in Västerås. The names of a few of the Dominicans are known from historical sources. The most famous is Petrus de Dacia, who was prior for a short period 1278-1279 (Kumlien, 1971:270). The Västerås priory closed during the reformation (1527 in Sweden), and the last friars left in 1528. The buildings were torn down after that, and the area was used for garden plots in the seventeenth century (Kumlien, 1971:190, 334).

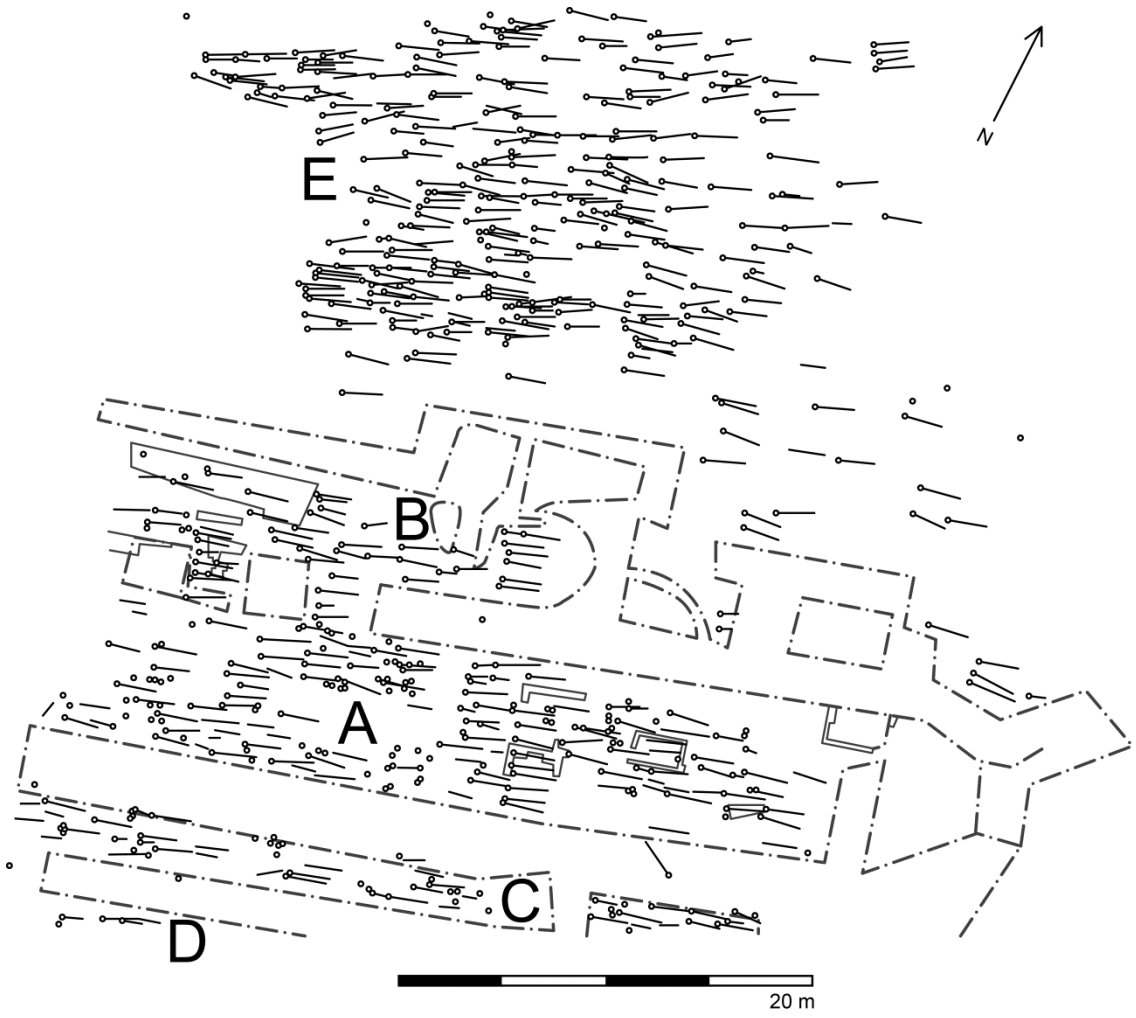

Figure 5: Plan drawing of the church and cemetery at the Västerås Dominican priory

The remains of the Dominican priory in Västerås were encountered during drainage construction in 1952 (Folin, 1985). The archaeological excavations were mainly conducted during the years 1954-1955 (church, cemetery) and 1959-1960. The director, Sven Drakenberg, considered the buildings the most important findings (Drakenberg, 1964), and the documentation is mainly focused on the buildings. According to Drakenberg, the graves were excavated reverentially, and in a letter dated November 17, 1954, from Drakenberg to the Swedish National Heritage Board he mentions that every grave *in situ* was photographed, measured, and included in the plan drawing. This information was intended to be published in the forthcoming excavation report (Letter from Drakenberg to the National Heritage Board, Gejvall's archive at the Osteological Research Laboratory, Stockholm University), however, Drakenberg never published a full report of the excavation, and the documentation of the graves has not been found in the archives (ATA, Västmanlands länsmuseum, Västerås stad, Drakenberg's and Gejvall's personal archives). A somewhat different picture is given by one of the participants of the 1954 excavation, Claes Lundberg (personal communication). When he worked as a site assistant, the excavation was conducted with great haste. Drakenberg was not present at the site, and the workers were all amateurs. The skeletons were collected in large boxes, without any recording whatsoever. His description of the working situation explains the lack of documentation, and why the majority of the more than 2000 individuals are intermingled. The individuals that were recovered separately were given individual grave numbers. The numbers all start with a letter, indicating the area where the grave was located: the central nave and choir of the church (A), the northern (B) and southern(C) aisles of the church, the cloister (D) or the cemetery (E) (Figure 5). There is no plan drawing of the entire site showing the precise location of the graves, however, except for Area A (Västmanlands läns museum's archive). In Area A, the graves were generally numbered in sequence from east to west. This is probably also true for the other areas, as photographs from the cemetery show some graves with grave numbers in sequence; for example graves E80, E81 and E82 are next to one another (Figure 6). Drakenberg published a few articles on the Dominican priory in Västerås (Drakenberg, 1957, 1964, 1976) and also included it in a book on Västerås (Drakenberg, 1970), however, the report was written after his death, by the archaeologist Nina Folin (1985), who did not participate in the excavation. The osteological material was analysed during the 1980s by Stig Holm, a doctoral student at the University of Stockholm, but his results were never published. To the author's knowledge, the only previous publication on the human skeletal remains is a paper on metopic suture by Torsten Sjøvold (1978).

The total number of graves is not known, but it has been estimated that more than 2000 graves were excavated at the site. Of these, 342 individuals met the criteria for inclusion in this study. The main reason for exclusion in the Västerås collection was that the bones had been intermingled. These 342 individuals are expected to represent both members of the Dominican order, and laypeople. The laity buried at the priory included men, women and children. Their social background can be hypothesised through a comparison to the Dominican priory of St Olof in Skänninge, studied by Arcini and Menander (Menander, 2018; Menander et al., 2013; Menander and Arcini, 2012). Historical documents such as wills and donations show that there was a shift over time, as the earliest lay burials are members of the

highest nobility, followed by local aristocracy, and finally by the burghers (Menander, 2018:135). A comparison can also be made to the obituary of the Franciscan friary St Karin in Visby, where the friars and laybrothers made up only around 20% of the buried population, and townspeople made up more than 50%. The burials also include nobility, clergy and people from the countryside (Menander 2018). A varied background can also be expected among those buried in the Västerås priory, where the burials additionally included soldiers fallen in battle (Drakenberg 1970).

Figure 6: Photo from the excavation of the Dominican priory in Västerås. ATA, Dnr 910/87, A-5324 "The burial grounds. Skeletons. From E[ast]." (My translation), cropped image, photographer unknown. On the original photo, the burial numbers E 80, E 81 and E 82 can be read on the white labels

As the documentation of the burials is poor, comparisons to other sites are used to discuss which groups were buried in which areas. In Skriðuklaustur, the canons were buried east of the church, and research from England shows that this was often the case (Gilchrist and Sloane, 2005; Mays, 2006). As there were no burials east of the church in Västerås, other places have to be considered, such as inside the church and other monastic buildings, or in a separate part of the cemetery. Typically, this separate area would be dominated by one sex (Gilchrist and Sloane, 2005; Mays, 2006). As the exact location of the graves has not been documented, this type of sex-based segregation cannot be identified in Västerås. On the general level male burials dominate in all areas, comprising 67-80% of the analysed

individuals in each area. Laity has also been buried in all areas. At religious houses, burials inside the church and other monastic buildings were primarily for members of the order, but also for the lay elite and laypeople connected to the house. There is also reason to expect a socioeconomic difference between laypeople buried in different areas, as burials in the most attractive locations were more expensive (Menander, 2018:209-211; Menander et al., 2013). According to medieval Norse laws, the area closest to the church and altar was reserved for the elite, while those of low status were to be buried by the outer borders of the cemetery (Nilsson, 1989). Archaeological evidence supports this, as high-status graves are found inside or near the church buildings (Andrén, 2000; Jonsson, 2009; Regner, 2005). Being close to the high altar was particularly desirable (Andrén, 2000), and this could be seen in Västerås, where brick tombs, indicating elite burials, were found in the eastern part of the nave and the choir (Folin 1985). The location of the friars' burials in Västerås, has not been identified, however. The graves inside the church and cloister (A-D) are interpreted as situated in a high status area, particularly the eastern part of the nave and the choir, while the cemetery (E) is interpreted as an area of lower status. This could possibly be supported by the higher proportion of older individuals buried inside the church (Table 1) and the higher mean stature/height of females buried in Area A (see below, Table 2).

Table 1: Age distribution (%) in burial areas A-E, Västerås

	n	Adolescent	Young adult	Middle adult	Old adult
A: Nave and choir	93	6.45	10.75	70.97	11.83
B: Northern aisle	49	12.24	20.41	61.22	6.12
C: Southern aisle	23	8.70	13.04	60.87	17.39
D: Cloister	6	16.67	33.33	33.33	16.67
A-D: Church & cloister	171	8.77	14.62	65.50	11.11
E: Cemetery	170	21.18	26.47	50.00	2.35

3. Theoretical background

One of the central challenges in a study of medieval masculinities based on osteological analysis is how to apply the theoretical frameworks to the empirical material – how can human skeletal remains give us any information on medieval masculinities? While this question, to some extent, has been raised in the articles that are part of this thesis, the matter is discussed more extensively here. The key line of thought is that masculinity is not a state, but a form of activity, that doing masculinity sometimes leaves marks on the body and the skeleton, and that osteological analysis can be used to identify and interpret these marks.

3.1 Sex and gender

Gender (cultural and historical norms of roles, attitudes and behaviours) has been discussed as something different from sex (physical and biological aspects of the body) at least since the 1970s (Warnke, 2011:1), however, this division has been questioned from a queer perspective, noting that sex also involves a context-specific understanding of the body (Butler, 2006; for a discussion in the context of archaeology, see e.g. Geller, 2017). The definitions of sex have shifted over time, relying on different criteria (Dreger, 1998; Fausto-

Sterling, 2000). While most individuals can be easily categorised as male or female, some present more of a challenge. This highlights the problems of categorisation, and the question of what defining features identify someone as belonging to a specific sex. It also stresses that sex assignment is an interpretation of the body, set in a specific historical context. Understandings of sex could rely on, for example, anatomy, gonads, or chromosomes (Dreger, 1998:37). In medieval Europe the inner quality of heat/cold was regarded the most fundamental difference between the sexes, causing differences in anatomy and personality (Cadden, 1993). The differences based on heat/cold include what would be labelled gender in contemporary society. As the distinction between sex and gender is a recent one, it cannot be expected to be found in every society (Dreger, 1998:10), such as in medieval Europe.

There is no consensus on the relationship between sex and gender. Is gender a consequence of sex (a female/male body leading to feminine/masculine gender), are they independent, or is sex a consequence of gender (the social organisation of gender makes us categorise people into different sexes) (Warnke, 2011:4-28, 60-61)? In the late 1990s, Meskell (1997:142) pointed to the confusion regarding terminology in archaeological discourse, aiming to show that "…these two fundamental concepts [sex and gender] may in fact be similarly constituted, if not one and the same", but at the same time cautioned against untheorised conflations of the concepts. Gilchrist (1999:14) also found the collapsing of categories problematic in archaeology. Although more than two decades have passed, the discussions of what constitutes sex and gender, and whether it is relevant to separate them in the studies of gender relations in past societies, are still relevant (see for example Ghisleni et al., 2016). Despite this, scholars have found the separation between sex and gender useful. Stig Sørensen (2000:49-50) and Sofaer (2006:98) emphasise that arguing that sex and gender are both culturally constructed does not mean that they are the same. As Geller (2017:4) puts it; "A connection between sex, gender, and sexuality, however, does not mean conflation. The concepts are distinct ones." Instead of perceiving the difference between sex and gender as a difference between nature and nurture, sex could be seen as a category of the body, and gender as a category of the person (Hollimon, 2017:57).

One way to approach sex and gender in burial archaeology has been to use osteological analysis to estimate sex, and artefacts to identify gender. Sex differences in the skeleton have been observed since at least the 18th century (Geller, 2017:28-29). The estimation of sex is commonly part of an osteological analysis, and in an adult individual with well-preserved cranium and pelvis, accuracy is sometimes estimated to be as high as 97% (Meindl et al., 1985). This approach to osteological sex and archaeological gender can be problematic, however. Firstly, human remains from archaeological contexts are often not well preserved, and there are sometimes no characteristics for sexing skeletal remains present. Secondly, as osteologically identified males and females are used to determine which artefacts are masculine and which ones are feminine, sex come to serve as the foundation of gender (Sofaer, 2006:101-102).

Individuals do not all correspond to expectations when comparing artefacts in burials and osteological sex estimations, and there have been finds of "feminine" jewellery with males

and “masculine” weapons with females. Deviations from the expected have attracted closer examination of the interpretations (compared to burials where gender expectations are met), and a lively debate around gender constructions in the past. The biologically female individual buried with warrior equipment in Grave Bj581 at the Viking site Birka, Sweden, is perhaps the best known example from recent years (Hedenstierna-Jonson et al., 2017; for a discussion of the reception of the article, see Moen, 2019; Price et al., 2019). In this case, the osteologically identified sex was confirmed by ancient DNA analysis. While the analysis of ancient DNA has added information on chromosomal sex to the discussion, this method does not offer final answers to all questions on sex and gender in the past. How individuals identified still remains enigmatic. One illuminating example of these complex questions is a burial from Suontaka Vesitorninmäki, Finland, where an individual had been buried with feminine jewellery and a sword. The bone preservation was too poor to allow an osteological sex estimation to be performed, but ancient DNA analysis of the chromosomal sex suggests that this individual had Kleinfelter syndrome (XXY). In this case artefacts found in the grave indicate a non-binary gender identity (Moilanen et al., 2021). An intersex body does not, however, require non-binary gender expressions in the burial. For example, Hildur Gestsdóttir (1998) has suggested that an individual buried in a tenth century grave from Öndverðarnes, Iceland, could have had Kleinfelter syndrome, based on the osteological examination. This individual was buried with a sword and other weapons traditionally associated with masculinity. Similarly, a combination of masculine and feminine objects in a burial does not require an intersex body. One example is a twelfth century burial at Vivallen, Sweden, where an individual was buried with a bead necklace, a silver broach, a needle case, a small knife with a silver shaft, and a linen tunic – all considered feminine, but also with a belt with bronze fittings – considered masculine. The osteological analysis identified the skeleton as a c 50 years old male. This individual was interpreted as a gender mixing Sámi shaman (Price, 2002:271-272, 277-278; Zachrisson, 1997:62, 148-149)

3.2 Masculinity

There are different ways to approach and define masculinity. In the influential book *Masculinities*, Connell (2005:72; see also Connell and Messerschmidt, 2005) defined masculinity as configurations of gender practice – not merely an identity or a role – but something one does. As pointed out by Demetriou (2001) this definition of masculinity has similarities to Butler’s notion of gender as something done, a verb rather than a noun. Butler (2006:189-193) has described gender as performative, in the sense that gender is constructed through practice. According to Butler, practices should not be understood as expressions of gender; instead gendered identities and cultural meanings of gender are formed through the constant repetition of practices. In this thesis, masculinity is understood in a similar manner; as a form of activity. This definition was not only chosen for its theoretical basis, but also for practical reasons. From an osteological perspective, a masculine identity is something intangible, unless the individual enacts masculinity in some way. Earlier studies of medieval gender have also approached gender as performed though practices (e.g. Arnórsdóttir, 2010), however, masculinity cannot be reduced to a summary or average of what men do (Connell, 2005:43), rather, it is about what is perceived as characteristic. To escape “the trap of

'whatever men do is masculinity'", Karras (2003:346), discussing medieval masculinities, suggested options such as identifying activities explicitly labelled as masculine in the sources, or assuming the existence of cross-cultural similarities. In the present study, the discussion of medieval ideals of masculinity is based on earlier research, and the contribution of original research relates to how these ideals were put into practice (or not). In this process, masculinity cannot always be clearly separated from other aspects of identity. For example, weapon-related trauma is interpreted as a sign of engagement in interpersonal physical violence, which has been pointed out as a way to enact masculine qualities such as bravery, strength, autonomy and power. At the same time as violence establishes and confirms masculinity, however, it could also enact, for example, social standing and/or profession. Masculinity might not always be the most important in these intersections of different aspects of identity. Here it is the chosen perspective, and – as any perspective – can only hope to give a partial view of a complex lived reality.

The enactment of masculinity can also be discussed as a form of performance, where it is not only important *which* type of activity one engages in, but more profoundly, *how* it is performed. For example, while the use of interpersonal physical violence has been identified as a prominent feature of medieval masculinity in northern Europe (Liliequist, 1999), this does not mean that a man was regarded as more masculine the more violence he used. *How* the violence was used was of vital importance in whether it could be regarded as a performance of masculinity. It had to be used for the right cause, against the right opponent, in the right situation, and using the right weapons, to be socially acceptable and legal (Ekholst, 2014). The technique, style or manner in which an activity is performed is also vital in how an individual is perceived, and whether they appear masculine or feminine (Migdalek, 2015). The manner in which one performs different activities is often unconscious and learnt from an early age (Mauss, 1973). Bourdieu (1977:76) discussed this non-discursive knowledge of how to act and carry oneself, using the concept of habitus, "a socially constituted system of cognitive and motivating structures". Habitus could be described as a sense for what is natural and sensible, a "feel for the game". The embodied aspect of habitus – the hexis – is displayed, for example, in gait, postures, speech and gestures, signalling identities such as gender and class (Bourdieu, 1984:474). It appears to the individual as the natural way to do things, and thus it is hard to learn or unlearn intentionally, for example to enact a changed identity or social position.

If defining masculinity as a form of practice, then it clearly cannot be an innate essential trait of an individual (Connell, 2005:68-69). This means that someone is not necessarily masculine, just because they happen to be a man, and not being a man does not necessarily disqualify someone from being masculine. In medieval Europe, the notion of masculine women and feminine men was not uncommon, and women could be praised for their masculine qualities, as could men for their feminine (Cadden, 1993:201-207). But what are these masculine qualities? There is no general answer to the question, as the concept of masculinity is highly variable and context specific (Connell, 2005:42-44). What is regarded as masculine in one setting might be classified as feminine or gender neutral in another and it varies between different societies and changes over time. This change could be on a societal

level, a slow change through history, but changes also take place during the life course of an individual, or when an individual moves between different settings. This very fluid nature of masculinity demonstrates that it is not something that you either have or lack.

Connell proposed the opposition to femininity: "'Masculinity' does not exist except in contrast to 'femininity'" (Connell, 2005:68). While the opposition to femininity is fundamental, it is not the only way to relate to masculinity. Discussing medieval masculinities, Karras (2003:11-12) identified other defining contrasts. For craftsmen, the authority and independence of adult masculinity was separated from boyhood. For the medieval university student, being masculine was not only about not being feminine, but also about not being a beast. Masculinity in this sense is related to being a civilised human. While masculinity was preferred to being like a woman, a child or a beast, it could also be contrasted to higher forms of being. In the comparison to angels, men were inferior (Swanson, 1998:162-163). This underscores that masculinity, in addition to having positive connotations, could also have toxic qualities.

While masculinity and femininity are often presented as opposites, and imagined as a dichotomy or the opposing endpoints of a spectrum, they are not necessarily mutually exclusive. They could also be seen as independent. In such a model, a very masculine individual could at the same time be very feminine (Fausto-Sterling 2000:222-224). In the osteological estimation of sex, morphological and metric sex characteristics are assessed independently, and it is not unusual for an individual to possess both masculine and feminine traits. This is not to claim that an individual is at the same time masculine and feminine, however, or male and female. The grading of sex dimorphic traits is a method used to address the uncertainties of individual variation (Sofaer, 2006:92). It could be – and often is – used to identify an individual as either male or female, although it could also be applied to studies using queer and non-binary perspectives of sex and gender (e.g. Geller, 2017; Hollimon, 2017). In the analysis of medieval masculinities, it is important to bear in mind that the masculinity of an individual does not automatically exclude femininity. This is, for example, relevant in the discussion on whether clerics were regarded as feminine. Feminine qualities, such as being tender and nurturing, were attributed to medieval abbots and bishops (Cadden, 1993:206). Regarding masculinity and femininity as opposing endpoints of a spectrum would mean that this feminine side rendered clerics less masculine than laymen, or even – as has been suggested by Swanson (1998) – a third gender. If, on the other hand, masculinity and femininity are seen as independent, this would not necessarily be the outcome.

3.3 Diversity and change

While masculinity can show a great variety over time and space, there can also be a multitude of different masculinities within a society. These different ways of doing masculinity are not necessarily all considered equal. Connell describes the most culturally exalted version of masculinity as hegemonic. According to Connell, the hegemonic masculinity legitimises patriarchy, the dominant position of men and subordination of women (Connell, 2005:77). While the hegemonic masculinity is generally supported, it can also be contested by different

groups. This leads to a constant negotiation and reconfiguration and there is no fixed content of the hegemonic masculinity. Instead the hegemonic ideals can be adapted to changing situations, and even appropriate elements of other masculinities, as a way of concealing the continued domination (Demetriou 2001).

Applying the concept of masculinity to a medieval context could potentially cause problems. Connell (2005:186) regards masculinity as a fairly recent concept, and Fletcher (2011) has pointed out that the medieval term "manhood" is not identical to the modern concept of masculinity. He cautions against using the concept of masculinity in a medieval context in an unreflected way. One such potential pitfall put forward by Fletcher (2011), is the great stress put on sexual performance in modern masculinities. This is not a universal trait of masculinities, and according to Fletcher it was not as central to medieval manhood as it is in many masculinities today. Moreover, the role of sexuality need not have been similar in all medieval masculinities. Liliequist (1999), for example, points to a difference in the importance attributed to sexuality in northern and southern Europe. Bearing this in mind, what is primarily of interest here is whether the category of masculinity is relevant for use in the analysis of the medieval societies studied, rather than what was regarded as characteristic of the category. That remains to be examined, once the relevance of discussing the activities of medieval men as enactments of masculinity is established.

Medieval notions of sex and gender certainly differed from the concepts of today. In the article "Regardless of sex" Clover (1993) discusses a one-gender model in medieval Iceland as a parallel to the more famous one-sex model described by Laqueur (1990). She finds the ideals of masculinity in Icelandic sagas, associated with strength, power and authority, applicable to both men and women, though few men and only exceptional women are able to live up to them. While showing the importance of separating the concept of masculinity from the male sex and suggesting that it is possible for women to do masculinity, this article focuses narrowly on the masculinity of the lay elite. This demonstrates another problem with using the concept of masculinity in medieval settings. Considering that medieval men were expected to adhere to their designated role in society, and behave accordingly, could there be such a thing as a hegemonic masculinity in medieval Europe? The concept of hegemonic masculinity has been used to discuss the elite warrior masculinities of, for example, Vikings (Raffield, 2019), knights (Karras, 2003), and crusaders (Mesley, 2019). Despite this, Karras has reservations about labelling knightly masculinity as hegemonic, stressing that these ideals were not applicable to all men. It is important to bear in mind differences in social mobility and ideals of equality between contemporary and medieval society, when using modern terminology to describe medieval gender relations (Karras, 2003:9-10).

While the concept of hegemonic masculinity has been extensively used, it has also been criticised, for example for being ambiguous, and based on flawed theories of masculinity and the masculine subject (for a summary of the critique, and a response, see Connell and Messerschmidt, 2005). There have also been attempts to elaborate the original concept, to improve it and adapt it to new contexts. Coles (2009) has presented such a model. While also based on contemporary masculinities, it is more flexible regarding the different positions of

domination and subordination. When theorising power relations among men, Coles combined the theory of hegemonic masculinity with Bourdieu's concepts of habitus, capital and fields. Habitus, dispositions or unconscious strategies to handle different situations, has been described above (Section 3.1). Capital refers to the various resources at one's disposal, broadly classified into economic, social and cultural capital. The possession of the capital valued within a field determines rank within that field (Coles, 2009:36). Fields refers to domains of social life, shaping and structuring the social settings in which habitus operate. Coles (2009:35-36) notes as an example: "the field of gender overlaps with many other fields (e.g., class, education, government) and also accommodates a variety of subfields (such as the field of masculinity and the field of femininity) and social institutions (such as the family and courts of law)." In the *field of masculinity* men struggle to dominate other men and the dominant masculinity is hegemonic, however, the field of masculinity contains different subfields – Coles uses gay masculinity as an example, and clerical masculinity could be an example in a medieval context – and within these subfields there are also positions of domination and subordination. The dominant position within a subfield might present ideals of masculinity that are very different from the ideals of the hegemonic masculinity. There is constant competition for domination within the fields and subfields of masculinity, as subordinate men challenge the current ideals, while men in dominant positions defend the status quo, and adapt and modify it to retain domination (Coles, 2009; Demetriou, 2001). This model allows for a variety of ideals for different groups of men, while still recognising the unequal power relations between different positions of domination. For example, a man dominating his subfield might still be in a subordinate position within the field of masculinity as a whole. This model also stresses the performative and fluid nature of masculinities, as something that is constantly repeated, contested, defended, negotiated and redefined.

3.4 Masculinities, bodies and osteology

The body has been a central theme in the study of masculinities (for a brief overview, see Connell and Messerschmidt, 2005), and the male body has been described as physical capital (Coles, 2009; Connell, 2005; Shilling, 2004, 2016). In this sense the possession of a masculine body could be regarded as an asset – the body could be used to perform masculinity, gain status and dominate women and other men. Bodily ideals change over time and might vary between different contexts. While often associated with appearance, the abilities and skills of the body are also of central importance. For example, when describing the medieval warrior masculinity of knights, Knüsel (2015) lists both the ideal physical appearance – an imposing stature and lithe but muscular build – but also bodily skills such as horse riding and weapons use. These aspects are also related, as the ideal knight's body results from the ideal knight's activities, such as horse riding and weapon use. However, the relationship between the body and masculinity is not always straightforward and unproblematic. The warrior lifestyle (further discussed in Paper III) also exposes the body to the risk of being injured, and the loss of the physical capital needed to perform in battle. Its association with strength, ability and independence means that masculinity is sensitive to changes of the body, through, for example, ageing, poor health or injury. This poses a conflict which may confront men who have impairments with a dilemma (for a discussion, see e.g.

Shuttleworth et al., 2012). There is consequently a dual relationship between the body and the enactment of masculinity – on the one hand the abilities of the body place limitations on what type of activities it is possible to engage in, on the other hand the practices engaged in contribute to the formation of the body. As Connell and Messerschmidt (2005:851) put it, "bodies are both objects of social practice and agents in social practice".

As explained above (3.1), it is a common approach in gender archaeology to compare osteologically estimated sex with artefacts identified as expressions of gender. In the medieval monastic burial contexts analysed in this research project, however, artefacts in burials are rare, and mostly consist of objects that seem to be gender neutral, such as the remains of coffins or shrouds (Kristjánsdóttir, 2012), and consequently, no such comparisons are possible. Instead, another method has to be applied, one that focuses on the body and embodied gender practice. Sofaer has argued that the body can be understood as material culture, and that "Skeletal remains can be regarded as the product of human action in much the same way as other forms of material culture, with gender materially articulated in the skeleton" (Sofaer, 2006:105). This approach could be used to study differences between masculine and feminine enactments of gender, but here the focus will be on differences within the field of masculinity. As the skeleton is plastic, it adapts and changes, and some type of activities, habits and lifestyles, included gendered practices, can be detected though osteological analysis. Habitual practices, performed over a long period of time, are needed for the skeleton to adapt. For example entheseal changes, or patterns of joint changes, could be related to gendered activities. Gender specific diets could also be identified though differences in health or stable isotope values. There are also briefer activities that can be detected through osteological analysis, such as accidents or intentional violence resulting in bone trauma (for examples of how these skeletal changes have been used in bioarchaeological studies of gender, see Section 3.5). While this gives osteology an unique opportunity to study the embodiment of gender practice, the things it is possible to detect through osteological analysis are still very limited, compared to the wide range of ways masculinity could be enacted. These limitations have constrained the aspects of masculinity that have been the focus of the research project. Diet, physical violence, ability and appearance were chosen as topics at the intersection of what it is possible to identify in human skeletal remains, and the things that have been put forward in earlier research as important aspects of masculinity. This means that other significant topics, such as sexuality, were omitted for practical reasons.

3.5 Previous research on medieval masculinities

Queer perspectives caution against preconceived assumptions regarding identities in the past, and encourage an unprejudiced examination of the material. It cannot be assumed in advance that the category of 'masculinity' is recognised in a society, and we have to consider that it might not be relevant in all contexts (Alberti, 2006). In the context of medieval Europe, earlier research (e.g. Cadden, 1993) has established that certain qualities were regarded as typical of men and medieval manhood. The concept of masculinity has been found useful in the analysis of gender relations, however, one has to be aware that this is an anachronistic terminology, representing an outsider's perspective (Fletcher, 2011).

As mentioned above (3.1), there are cultural aspects to sex. To further blur the distinctions between the concepts there are also biological dimensions to gender. Bioarchaeological methods have been used in a number of recent studies on gender and other identities (Buikstra and Scott, 2010). One such aspect is the effect of a gendered division of labour on the body, which has been studied bioarchaeologically through, for example, comparing joint disease or entheseal changes in males and females (Sofaer, 2006:100-116; Villotte and Knüsel, 2014). Other examples are studies of gender differences in diet or health making their marks on the skeleton (see for example Agarwal and Wesp, 2017). Gendered differences regarding the topics discussed in Papers I-IV – diet, physical violence and oral health – have also been studied previously. This includes analyses of stable isotopes to detect dietary differences relating to gender, but also intersecting with other identities such as socioeconomic or lay/clerical status (Kjellström et al., 2009; Müldner and Richards, 2007a; Polet and Katzenberg, 2003; Quintelier et al., 2014; Reitsema and Vercellotti, 2012; Yoder, 2012). Differences have been noted between males and females in patterns of weapon-related trauma, and discussed from a gender perspective (Kjellström, 2009; Milner et al., 2015; Sullivan, 2004). The complex relationships between sex and gender, regarding differences in oral health between males and females, have also been studied (Lukacs, 2017). Earlier research on these topics is further discussed in the papers. While most bioarchaeological gender studies focus on the difference between males and females, there are also studies which explicitly focus on masculinities. For example, Boutin and Porter (2019) have studied the shifting notions of masculinity over the life course, based on the analysis of Near East Bronze Age burials from early Dilmun. Patterns of trauma in a sample from late medieval England have been used to examine gender performance and warrior identity by Knüsel (2012), and labret use (lip piercing) in prehistoric Chile has been discussed as a way to emphasise a particular form of masculinity by Torres-Rouff (2012).

The study of medieval masculinities has been based less on bioarchaeology than on written sources. Nevertheless there have been numerous publications on medieval masculinities in recent decades (e.g. Beattie and Fenton, 2011; Hadley, 1999; Hodgson et al., 2019; Karras, 2003; Kiefer, 2009; Lees et al., 1994; Murray, 1999; Thibodeaux, 2010). The great potential of archaeological source material has also been emphasised (Skogstrand, 2010). Examples of such studies in medieval and early modern Europe include Gilchrist's (2009) use of burials to study medieval clerical masculinity in England, Dressler's (1999) examination of the expression of warrior masculinity in tomb effigies, and the study of masculinities in early modern Iceland by Hayeur-Smith, Lucas and Mould, analysing the archaeological remains of dress and accessories (Hayeur-Smith et al., 2019). Studies dealing with a Nordic medieval context are of particular interest here. Again, written sources are often used. For the early medieval (Viking age) period this could mean rune stones, such as in Thedéen's (2009) study of the commemoration of masculine ways to die. In a Swedish context, Småberg (2013a) has analysed Eric's Chronicle to discuss masculinity in male friendship, and in battle tournaments (Småberg, 2013b). The richness of medieval Icelandic literature has also attracted researchers of masculinities. For example Egilsdóttir (2015) has studied masculinity, violence and peacefulness in *Eyrbyggja saga*, and Jakobsson has explored the very different constructs of

masculinity in *Njáls saga* (Jakobsson, 2007b) and *Flóres saga ok Blankiflúr* (Jakobsson, 2014) , as well as the masculinity of bishops in medieval Iceland (Jakobsson, 2007a). Other examples are Jochens' (1999) study of male love, friendship and homosocial desire in *Bjarnar saga Hítdœlakappa* and Kress' (2002) analysis of how males in Old Norse literature use weapons and violence to suppress women and femininity. Literary sources have also been used in combination with archaeological material, such as in Raffield's (2019) study of the role of militarism and hegemonic masculinity in the enculturation of children and adolescents in Viking period Scandinavia.

Summarising the general conclusions from this vast and diverse field of research, there are a few important points to make, that form the background to the research in this thesis. Firstly, the theoretical frameworks of masculinities are widely used, and found relevant to the context of medieval Europe, including the Nordic area. Secondly, exploring a range of diverse medieval masculinities, the scholarship has made it clear that there is not one single way to be masculine in medieval Europe. Medieval masculinities are characterised by diversity and fluidity. Thirdly, the contrasting opposition between clerical and lay masculinities is notable through this diversity. Fourthly, the bioarchaeology of identities has shown that gender and masculinities can be studied through the analysis of human skeletal remains. These four insights from earlier studies form the point of departure for this research project.

4. Methods

4.1 Osteology

The osteological analysis of the skeletal collections from Skriðuklaustur and Västerås was performed by the author during the period 2013-2016, using the standard methods recommended by Buikstra and Ubelaker (1994). The skeletal material had previously been cleaned and stored at Þjóðminjasafn Íslands, Iceland (Skriðuklaustur) and Västmanlands läns museum, Sweden (Västerås). The skeletons were analysed using visual inspection, sometimes aided by a magnifying glass. Measurements were taken with a sliding calliper and an osteometric board. All individuals were registered in a File Maker database, and photographs were taken of entire skeletons and of individual elements of particular interest. The different methods are described in more detail in the articles (Papers I-IV) where they are applied.

4.1.1 Sex

Assessments of sex are based on the morphology of the pelvis and cranium (Bruzek, 2002; Buikstra and Ubelaker, 1994; Phenice, 1969). In the initial analysis sex was registered as female, probable female, undetermined, probable male and male. For the further analysis, probable female and probable male were included in the categories female and male, respectively.

4.1.2 Age

Age estimations in non-adults are based on dental development (Moorrees et al., 1963b, 1963a; Smith B H, 1991; Ubelaker, 1989) and the fusion of epiphyses (Scheuer and Black, 2000). The ages of adults were estimated based on the pubic symphysis (Brooks and Suchey, 1990), the auricular surface of the iliac bone (Lovejoy et al., 1985), cranial suture closure (Meindl and Lovejoy, 1985) and dental attrition (Brothwell, 1981). The age groups used in the study include adolescent (c 12-20 years), young adult (c 20-35 years), middle adult (c 35-50 years) and old adult (over 50 years). Only two age groups were used in Paper IV for comparisons of oral health, combining adolescents and young adults into a "young" group, and middle and old adults into an "old" group. Osteological age estimations refer to a biological age (the development and maturation of the skeleton). The ageing process differs between individuals, and the biological age does not necessarily correspond to a certain chronological age in years, or social age (e.g. being defined as adult), even though this terminology is used (for a discussion see Sofaer, 2006:117-143).

4.1.3 Stature

Comparisons of stature are based on measurements of the maximal length of the femur (Fe1 in Martin and Saller, 1957). When femora from both sides are present, the mean value of the combined measurements has been used, however, to facilitate comparison to other sites, estimations of stature based on maximal femoral length are also presented. The equations by Sjøvold (1990) have been used, as they have been applied in many other medieval Scandinavian materials (Arcini, 1999, 2003; Werdelin et al., 2000). For a discussion of estimation of stature, see Paper I.

4.1.4 Weapon-related trauma

Weapon-related trauma, that is direct trauma to the bone intentionally caused by external force, can be hard to separate from accidental injuries. Sharp force trauma, including projectile injuries, where the weapon has left a mark, is the clearest indications of intentional violence, although accidents cannot be completely ruled out (Krakowka, 2017). In this study, blunt force trauma to the cranium – including facial fractures and depression fractures above the hat brim line have been included, as these types of injuries are often caused by interpersonal violence (Guyomarc'h et al., 2010). Post-cranial blunt force trauma is not included, as it is challenging to separate intentional violence from accidental injuries (although it can be used, see, e.g., Milner et al., 2015).

The injuries were categorised as antemortem or perimortem. *Antemortem* trauma occurs before the time of death and can be distinguished by signs of bone remodelling due to healing or secondary inflammation. *Perimortem* trauma occurs around the time of death, in fresh bone, and no bone remodelling can be observed (Lovell, 1997; Sauer, 1998). The fracture pattern, fracture surface characteristics and the colour of the bone surface were used to distinguish perimortem trauma from postmortem damage (Sauer, 1998; Boylston, 2006). Weapon-related trauma has been identified as blunt force trauma, sharp force trauma and projectile trauma. The following criteria were used for *blunt force trauma*: an impact site with

radiating fracture lines, often in combination with concentric fractures; bevelling on the inner aspect; and bone fragments still attached to one another (Figure 7). In the process of healing or when healed, a depression of the outer (and in more severe cases also the inner) tablet may be observed (Sauer, 1998; Boylston, 2006; Krakowka, 2017). *Sharp force trauma* has: a well-defined linear cut; a flat, smooth, polished kerf wall sometimes showing striae; the opposite surface showing flaking and roughening; and possibly associated radiating fractures with fresh bone characteristics (Boylston, 2006; Novak, 2000) (Figure 8). When healed, the lesion is shown as a linear trauma with rounded edges or a long depressed gutter fracture (Boylston, 2006). For a discussion of weapon-related trauma, see Papers II and III.

Figure 7: Västerås C 63 II, frontal bone, blunt force trauma (perimortem)

Figure 8: Västerås B 19 II, left parietal bone, sharp force trauma (perimortem)

4.1.5 Oral health

The analysis of oral health was performed using visual inspection, and recorded according to standard methods (Buikstra and Ubelaker, 1994). Antemortem tooth loss was identified when the tooth was missing and the alveolus was resorbing or fully resorbed (Buikstra and Ubelaker, 1994:49) (Figure 9). Dental caries (i.e. demineralisation of enamel) were identified when a cavity was present, and registered according to severity and location on the tooth (Figure 10). As the initial stage is challenging to recognise using visual inspection, only clear cases were registered (Hillson, 2001). Periapical lesions (i.e. chronic inflammatory lesions of the alveolar bone near the apex of an involved tooth) were identified, without making any distinction between granulomas, abscesses or cysts (Dias and Tayles, 1997). Periodontitis was identified examining the morphology of the buccal contour of the alveolar margins (Ogden, 2008). Dental wear was recorded according to Smith (1984, for incisors, canines, premolars) and Brothwell (1981, for molars). Calculus deposits were registered as absent, small, medium or large (Brothwell, 1981). Dental wear and calculus deposits were particularly noted as a concern for overall oral health when severe, such as wear leading to pulp exposure, or unusually large deposits of calculus, sometimes covering the occlusal surface of the tooth. For a discussion of oral health, see Paper IV.

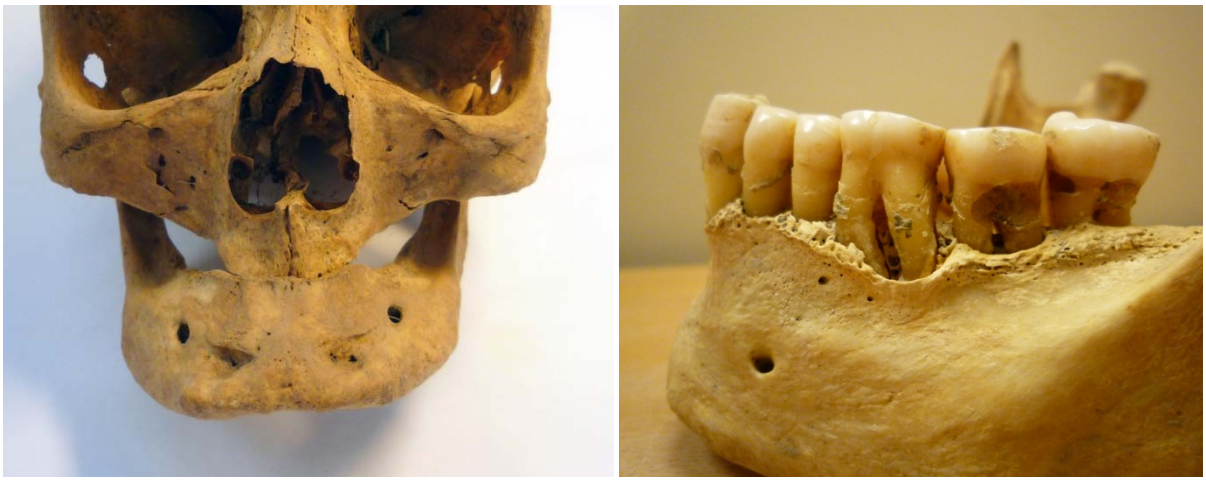

Figure 9: Skriðuklaustur SKR 30, antemortem tooth loss of the entire dentition, edentulous individual

Figure 10: Västerås E 144, mandible, periodontitis and cervical caries (37, 38)

4.1.6 Other pathologies

The analysis also included the identification and recording of other bone changes, which have not been discussed in the papers. The following conditions were registered, and are listed in the tables of the appendices.

- Cribra orbitalia

Porotic hyperostosis of the orbital roof, cribra orbitalia, could have numerous causes, including inflammatory, haemorrhagic and tumorous processes, as well as dietary disorders such as anaemia, scurvy or rickets (Ortner, 2003:89, 102). The roof of the orbit was registered as present or absent, and cribra orbitalia recorded when pitting was present (Stuart-Macadam, 1985) (Figure 11). Porotic hyperostosis on the cranial vault was not identified in the studied individuals, although it has been observed in infants at Skriðuklaustur (Ahlin Sundman, 2011:19).

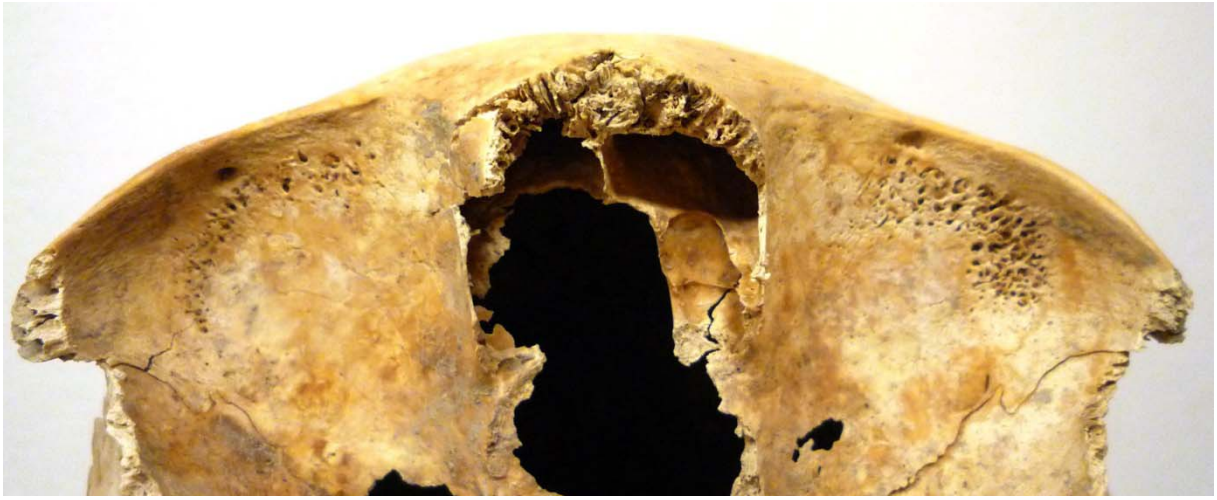

Figure 11: Västerås E 103 I, frontal bone, orbital roofs, bilateral cribra orbitalia

- Osteoarthritis

Osteoarthritis is the most common condition, apart from dental disease, seen in the skeleton. In osteoarthritis, the cartilage of a synovial joint gradually breaks down (Waldron, 2009:26-27). In the present study, joints were recorded as either present or absent, and osteoarthritis identified according to the following criteria: either the presence of eburnation (Figure 12), or the presence of at least two of the following; marginal osteophyte formation, surface pitting, new bone formation on joint surface, and changed contour of the joint (Waldron, 2009:34).

- Periosteal new bone

New bone formations on the bone surface can have many causes, but are often related to infection or trauma. Pitting, longitudinal striations, and new bone formation on the cortical surface of the bone were registered (Roberts and Manchester, 2012:172) (Figure 13).

Figure 12: Skriðuklaustur SKR 55, proximal left tibia, lateral condyle, osteoarthritis with eburnation

Figure 13: Västerås E 339 I, distal left humerus, posterior view, periosteal new bone

- Osteomyelitis

Infections can affect different layers of bone, including the periosteum (periostitis), cortex (osteitis) and the medullary cavity (osteomyelitis), although the term osteomyelitis is sometimes used to refer to bone infection in general (Roberts and Manchester, 2012:16). As radiography was not used in this study, only the appearance of the bone surface (e.g. thickening of the cortex) could be observed. If the bone was fragmented, the medullary cavity could also be inspected. The characteristic signs of osteomyelitis – a cloaca, an involucrum and a sequestrum – were not observed together in any of the examined bone elements (Figure 14).

- Sinusitis

Sinusitis is an inflammation of the mucosal membranes of the paranasal sinuses, which – if it becomes chronic – can affect the underlying bone surfaces. The paranasal sinuses were examined when bone preservation admitted (no drilling was performed to access complete sinus cavities). This particularly applied to the maxillary sinuses, but the frontal and sphenoid sinus cavities could also sometimes be inspected. Sinusitis was registered as present when pitting, or spicules of new bone could be observed on the interior surface of the sinus (Ahlin

Sundman and Kjellström, 2013; Boocock et al., 1995; Roberts and Manchester, 2012:147) (Figure 15).

Figure 14: Västerås E 188 I, distal left femur, posterior view, cloaca

Figure 15: Västerås E 126 II, right maxilla, maxillary sinusitis

- Trauma

Roberts and Manchester (2012:84) broadly define trauma as a bodily injury or wound. Trauma includes for example fractures, dislocations and deformations (Ortner, 2003:119). Of these, only fractures were identified in the examined materials with certainty. Most fractures were healed long bone or rib fractures, identified by a callus formation and sometimes a malalignment or shortening of the bone (Figure 16). Other types of fractures included compression of vertebral bodies, osteochondritis dissecans (Figure 17) and spondylolysis. Fractures due to weapon-related trauma are treated separately in Section 4.1.4.

Figure 16: Västerås A 43 I, right third rib, healed fracture

Figure 17: Skriðuklaustur SKR 234, distal left femur, medial condyle, osteocondritis dissecans

Other pathologies – often less common – were also noted but are not listed in the tables in the appendices. More information on the paleopathology of Skriðuklaustur can be found in the osteological reports (Ahlin Sundman, 2011; Brandt, 2010; Collins, 2010, 2011; Hawtin, 2006; Pacciani, 2006, 2008, 2009, 2010), the publications by Joe Walser and colleagues (Walser, 2021; Walser et al., 2019; Walser, Gowland, et al., 2020; Walser, Kristjánsdóttir, et al., 2020), and in two articles focusing on venereal syphilis (Kristjánsdóttir, 2011) and hydatid disease (Collins and Kristjánsdóttir, 2011). An osteological report on the Västerås material is in preparation.

4.2 Bone chemistry – stable isotope analysis and radiocarbon dating

The analysis of bone chemistry was not performed by the author. Laboratory analyses of stable isotopes of carbon (C), nitrogen (N) and sulphur (S) were used to discuss the diet and geographical origin of sixteen males and six females buried at the Dominican priory in Västerås (Paper I). In the males, two samples were taken from each individual, one from the dentine at the lower part of the crown of the second molar, and one from the mandible. Teeth form at different times during childhood, while bone remodels throughout the life-course. Consequently, a dentine sample represents childhood diet (in this case c. 6-8 years of age), while a bone sample represents adult diet. In the females, only a bone sample was taken. The sampling was performed at the Archaeological Research Laboratory, Stockholm University, and the isotope measurements were implemented at the Stable Isotope Laboratory (SIL), Stockholm University (Fjellström and Eriksson, 2014, 2016). Radiocarbon dating was used to discuss the chronology of the burials at the Dominican priory in Västerås, based on samples from eleven males, five females and two individuals of undetermined sex (Paper III). The radiocarbon dating was performed at the Tandem Laboratory, Uppsala University (Ua-59190—Ua-59194 and Ua-61521—Ua-61533) (Possnert and Beckel, 2018, 2019).

4.2.1 Sample selection and ethical considerations

Bone chemical analyses are destructive, and cause damage to the sampled elements. This calls for careful consideration, weighing the gain and loss of information against one another, and against the ethical requirements of preservation (Mays et al., 2013; Riksantikvarieämbetet, 2020). The individuals sampled were selected by the author, with the aim of maximising the information gained, for example representing different burial areas, different sexes, or individuals with weapon-related trauma. As there was some intermingling of bones even in the *in situ* burials, rib fragments were in many cases considered inappropriate for sampling, as there was a risk that they did not belong to the main individual. Sampling was preferably conducted on bones that were already damaged postmortem. The sampling site on the bone was chosen to minimise damage, for example on the medial side of the mandibular body, or where there was already postmortem damage to the bone (Figure 18). The teeth (second molar) were sampled from the lingual side. All bones and teeth were photographed before and after sampling. All sampling of the Västerås collection was approved by Västmanlands läns museum.

Figure 18: Västerås A 9, mandible, sampling site for stable isotope analysis

4.3 Archaeological context

The osteological results are interpreted in the light of the archaeological context. The location of the burials, and – for Skriðuklaustur – the grave contexts, coffins and artefacts, were used to categorise the buried individuals. In Västerås the only distinction made is between different burial areas, interpreted as reflecting higher or lower socioeconomic status. In Skriðuklaustur four major groups were identified: members of the religious order (with their families), benefactors, lay brothers and sisters, and patients. The categorisations for Skriðuklaustur are based on earlier research (see Section 2.2 above; Kristjánsdóttir, 2010, 2012). The archaeological context is also important for an understanding of the functions and activities of the religious houses, such as the hospital at Skriðuklaustur. The archaeological context has been studied through reports (Folin, 1985), journal articles (Collins and Kristjánsdóttir, 2011; Drakenberg, 1957, 1964, 1976; Kristjánsdóttir, 2010, 2011, 2015, 2016; Kristjánsdóttir et al., 2014) and books (Kristjánsdóttir, 2012, 2017). Unpublished material related to the Västerås excavation was also studied at the archives of Antikvarisk-topografiska arkivet (ATA), Västmanlands läns museum, Västerås stad, and the personal archives of Drakenberg, the director of the excavation, and Gejvall, the osteologist who initially received the human skeletal remains.

4.4 Statistical analysis

The statistical analysis was performed by Dr Anna Kjellström, Stockholm University. SPSS for Windows was used (Versions 22 and 23), and a p value of <0.05 was considered to be significant. In Paper I, a two-sample t-test was used to determine whether the stable isotope values and statures from different groups were statistically different. In Paper II, χ^2 tests were used to test the differences in the distribution of weapon-related trauma by sex and burial areas, and Kruskal−Wallis tests were performed to test the differences between age groups.

4.5 Limitations of the study

The methods and source materials used have inherent limitations. This applies particularly to the Västerås excavation, and the limited sample size for analyses of stable isotopes and radiocarbon dating. The osteological materials and methods also have limitations in a more general sense, restricting the potential to investigate various aspects of masculinity. The limitations of the individual studies are explained in Papers I-IV.

There are two major issues with the skeletal collection from Västerås. Firstly, the majority of the burials were intermingled during excavation. This means that although more or less all the burials at the Dominican priory were excavated, only 342 out of more than 2000 met the criteria for inclusion in the study. This means that the excavation practice has affected the sample selection. It is hard to estimate the effect that this has had on the study without a closer examination of the intermingled remains. Secondly, the documentation of the excavation is limited, and there is no plan drawing where the individual burial numbers are marked (except for Area A) (Folin, 1985:74). This limits the types of questions that can be answered. For example, the spatial organisation of the burials – which has been proposed as an important way to express social differences (Andrén, 2000; Menander, 2018) – could only be studied at the most superficial level. The burial area of the individuals is known, but not the specific position of individual graves. The most serious result of this limitation is that the clerics could not be identified. Still, even when the spatial distribution of burials is known, there is a margin of uncertainty regarding the identification of clerics and other groups (Müldner and Richards, 2007a; Quintelier et al., 2014). The previous categorisation could also be challenged in new studies (e.g. Sullivan, 2004).

The sample used in the analysis of stable isotopes and radiocarbon dating in Västerås was small. Studies using small samples can still be valuable when there are no large samples available (Etz and Arroyo, 2015), which is often the case in archaeological research. The sample size required depends on the type of analysis that is planned (Israel, 1992), however, the size of the sample limits the potential to generalise from the results (Etz and Arroyo, 2015). One effect of this is that no baseline sulphur isotope value could be established for Västerås. Using small samples, it is important to recognise what they can reveal, and what they cannot. For example, the radiocarbon dating from Västerås shows there are burials recovered *in situ* from the entire period the priory operated, but it does not reveal the proportions of burials belonging to each century.

There are also limitations to human skeletal remains, not specific to the sites analysed in this study. While some aspects of masculinity – relating to gendered activities and embodied identity – could be studied through osteological analysis, others are still inaccessible using current methods. One important such issue is that they do not give direct access to the self-identification of individuals, regarding maleness and masculinity. Did individuals, osteologically estimated to be male, consider themselves, and were perceived by others, as men? This stresses the importance of using a wide range of source materials, which can complement one another.

5. Results

This section gives a brief summary of the four articles of the thesis. For more extensive information on the individual studies and further references, see the individual articles. In the following section, *Discussion*, the results and interpretations are integrated and discussed thematically.

5.1 Paper I: Masculinities and diet

Diet can be used to express identities, including gender. In medieval medical theory, the consumption of meat was associated with heat and virility, and it was considered the prime food for providing strength. It was thus also the perfect food to avoid in order to display self-restraint and asceticism (Montanari, 2015:64-65). The Christian church advocated – not only for the clergy, but also for lay people – fasting and abstinence from the meat of quadrupeds, which could be substituted by, for example, fish, cheese, egg and vegetables (Montanari, 2015:162-163). Stable isotope analyses indicate that the consumption of fish increased in medieval England, and this has been interpreted as a result of a dietary shift to follow the fasting rules imposed by the Christian church (Müldner and Richards, 2005, 2007b).

Paper I discusses the role of meat eating versus fasting in lay and clerical masculinities. It was hypothesised that males belonging to different groups had different diets, and that diet was an integral part of masculine identities. The individuals included in the study had been buried at the Dominican priory in Västerås (1244-1528). As stature depends partly on nutrition (Steckel, 2004), estimations of stature were also included in the study. A total of 259 individuals had at least one femur preserved, where the maximal length could be measured (Fe1, Martin and Saller 1957). Sixteen males and six females were sampled for stable isotope analysis of carbon (C), nitrogen (N) and sulphur (S). Two samples were taken from each of the males, one from the mandible and one from a second molar. Only one sample each was taken from the females, from the mandible. Of the males sampled, eight had been buried in the church, and eight in the cemetery, while all six females had been buried in the church. It was assumed that the burials inside the church building represented individuals of higher socioeconomic status than those from the cemetery. Thirteen animal bones were also sampled as reference. The isotope analysis was performed at Stockholm University by Markus Fjellström and Gunilla Eriksson (2014, 2016).

Table 2: Maximal femur length (Fe1) and estimated stature, based on equations by Sjøvold (1990), in females and males buried at the Dominican priory in Västerås

Sex	Area	No	Fe 1(mm)	Stature (cm)
Female	A	12	443.3	166.5
	E	30	421.3	160.8
	total	49	427.8	162.5
Male	A	59	472.2	174.1
	E	101	465.9	172.5
	total	210	467.8	173.0

The results of the stature estimation showed that the mean stature was 162.5 ± 4.52 cm for females, and 173.0 ± 4.52 cm for males (Table 2), which is similar to other medieval Nordic sites (Arcini, 2003; Werdelin et al., 2000). It was expected that the individuals buried in the high status area (choir and nave of the church) would have a higher mean stature than those buried in the lower status area (cemetery), due to better access to nutritious food. However, while females buried in the choir and nave of the church were significantly taller than those buried in the cemetery, no such difference was identified among males. As diverse groups of males, including Dominican brothers, lay brothers, and warriors fallen in battle, were buried at the priory, the categorisation of males as high or low status based on burial location was likely inadequate. At least it was not reflected in stature differences.

The results of the stable isotope analysis showed that the carbon values ranged between -18.5 ‰ and -21.1 ‰ (mean -20.2 ‰, SD 0.7 ‰). The nitrogen values ranged from 10.7 ‰ to 14.8 ‰ (mean 13.1 ‰, SD 1.2 ‰) (Figure 19, Tables 3 and 4). There were differences in diet on an individual level, with the diets of some individuals dominated by meat and vegetables, while others included more freshwater fish. Among the males, there were also individuals where marine sources contributed to the diet, however, there was no significant difference in isotope values between the sexes, between males buried in different areas, or between samples taken from dentine (representing childhood diet) and bone (representing adult diet). The sulphur values ranged from 1.3 ‰ to 13.0 ‰ (mean 6.3 ‰, SD 3.0 ‰) (Tables 3 and 4). No precise value could be established as a local baseline for Västerås, but the results indicated a baseline value around 6.1 ‰ to 6.4 ‰. The results showed that there was a significant difference in sulphur values between males and females, indicating differences in origin between the sexes.

According to the stable isotope analysis, many individuals had enriched nitrogen values, and it was suggested that consumption of freshwater fish was the main reason behind this. The friars could not be identified from the material, but it is common for members of religious orders to be buried together, separated from the laity (Gilchrist and Sloane, 2005; Mays, 2006). Enriched nitrogen values were found in males buried in different parts of the church and cemetery, and it is unlikely that they were all friars. Females also had similar nitrogen values. This suggests that not only the members of the monastic society in Västerås, but also lay men and women, observed the church's rules on fasting. The sample examined is small, and while the results are in line with previous studies of diet in medieval Sweden (Arcini et al., 2014; Kjellström et al., 2009), a future study with a larger sample from Västerås would be desirable. Females in particular are poorly represented here. It would also be interesting to test the suggestion that warriors (in this context males with weapon-related trauma) had a different diet from other males.

New information of interest for the study has become available since the publication of the paper. In the paper, it was assumed that most of the individuals date from the end of the period 1244-1528, based on one radiocarbon date (Grave A 155 I, dated to AD 1470-1650 (95.4%)) and the observation that earlier burials had been destroyed by later ones (Folin, 1985). Additional radiocarbon dating has shown that there are in *situ graves* from the whole

period of the priory, and two newly dated individuals were included in the stable isotope study (see below, Table 7). One (A9) gave no results, but the other one, E 57 I, is indirectly dated, being buried in the same triple burial as E 56 I, dated to 1410–1520 AD (90.6%), 1600–1620 AD (4.8%). As the new evidence shows that the graves date from the entire period of the priory (thirteenth to sixteenth centuries), it cannot be assumed that all the sampled individuals lived during the same time period.

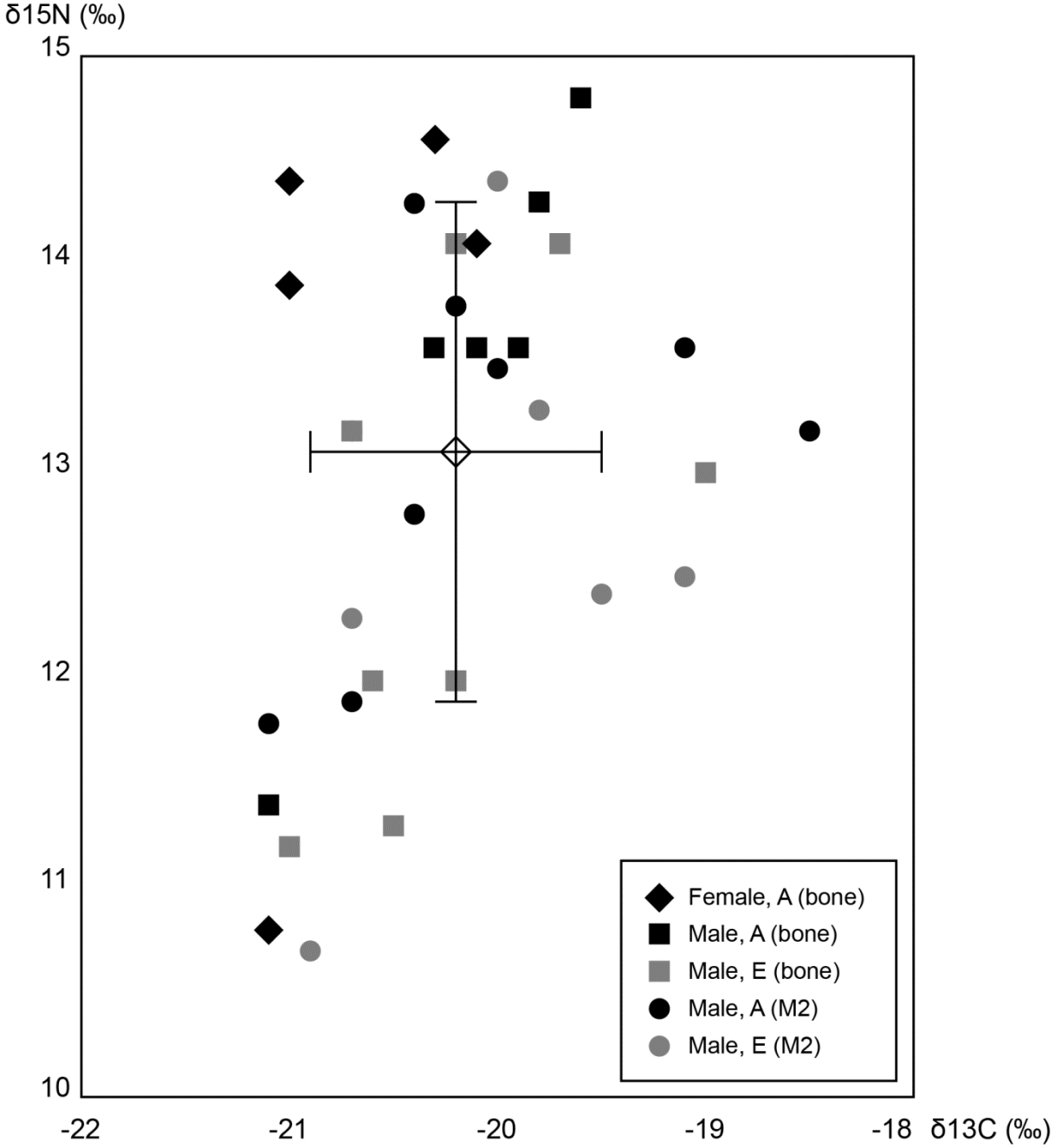

Figure 19: Diagram showing the carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) values in the human sample from Västerås

Table 3: Stable isotopes of carbon, nitrogen and sulfur, in human samples from Västerås. M – male, F – female, Mand – mandible.

Grave	Sex	Bone	Collagen (%)	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	% C	% N	% S	C/N	C/S
E 45 I	M	Mand	10.3	-20.2	12.0	11.0	39.9	14.5	0.23	3.2	463
E 45 I	M	M2	5.9	-19.5	12.4	11.9	39.5	14.7	0.22	3.1	479
E 319 I	M	Mand	2.7	-20.5	11.3	-	41.1	15.5	-	3.2	-
~~E 319 I~~	~~M~~	~~M2~~	~~0.6~~	-	-	-	-	-	-	-	-
~~A 72 I~~	~~M~~	~~Mand~~	~~0.8~~	-	-	-	-	-	-	-	-
A 72 I	M	M2	5.2	-18.5	13.2	9.4	36.0	13.3	0.19	3.2	505
A 54 I	M	Mand	7.5	-20.1	13.6	3.5	41.9	15.4	0.21	3.2	533
A 54 I	M	M2	4.1	-20.0	13.5	1.8	40.5	14.7	0.21	3.2	515
A 155 I	M	Mand	6	-21.1	11.4	7.7	39.4	14.3	0.23	3.2	458
A 155 I	M	M2	1.9	-21.1	11.8	-	38.6	14.1	-	3.2	-
E 36, 12 II	M	Mand	8.6	-19.7	14.1	5.4	39.3	14.4	0.20	3.2	525
E 36, 12 II	M	M2	7.7	-19.8	13.3	5.0	37.6	13.8	0.22	3.2	456
A 12 I	M	Mand	5.8	-19.6	14.8	7.5	40.9	14.8	0.23	3.2	475
A 12 I	M	M2	3.8	-19.1	13.6	9.4	40.2	14.8	0.23	3.2	466
E 16 I	M	Mand	5.5	-21.0	11.2	5.9	35.7	13.0	0.20	3.2	476
E 16 I	M	M2	5.9	-20.7	12.3	5.9	41.0	14.9	0.23	3.2	476
A 146 I	M	Mand	4.2	-20.3	13.6	4.1	41.6	15.2	0.21	3.2	529
A 146 I	M	M2	5.2	-20.4	12.8	2.0	31.3	11.3	0.14	3.2	596
~~A 40 I~~	~~M~~	~~Mand~~	~~0.5~~	-	-	-	-	-	-	-	-
A 40 I	M	M2	6.6	-20.2	13.8	4.3	38.5	13.6	0.23	3.3	447
E 117 I	M	Mand	1.3	-20.7	13.2	-	38.7	13.8	-	3.3	-
E 117 I	M	M2	6.1	-20.7	13.2	5.2	39.9	14.3	0.20	3.3	532
A 126 I	M	Mand	6.3	-19.8	14.3	6.4	39.8	14.3	0.19	3.2	559
A 126 I	M	M2	5.6	-20.4	14.3	5.4	39.4	14.3	0.20	3.2	525
E 57 I	M	Mand	3	-20.6	12.0	10.0	40.9	14.8	0.19	3.2	574
E 57 I	M	M2	6.1	-20.9	10.7	13.0	36.0	13.1	0.19	3.2	505
A 158 I	M	Mand	8	-19.9	13.6	7.0	41.4	15.0	0.21	3.2	526
A 158 I	M	M2	4.1	-20.7	11.9	7.8	40.1	14.4	0.24	3.3	446
E 115 I	M	Mand	1.4	-19.0	13.0	7.8	38.0	13.8	0.18	3.2	564
E 115 I	M	M2	2	-19.1	12.5	9.3	40.1	14.6	0.26	3.2	412
E 107 I	M	Mand	4.4	-20.2	14.1	6.4	39.2	13.8	0.18	3.3	581
E 107 I	M	M2	4.5	-20.0	14.4	7.2	40.6	14.7	0.20	3.2	542
~~A 9 I~~	~~F~~	~~Mand~~	~~11.2~~	-	-	-	~~39.8~~	~~8.92~~	~~0.13~~	~~5.0~~	~~817~~
A 36 I	F	Mand	1.7	-21.0	13.9	5.0	43.4	15.7	0.18	3.2	644
A 68 I	F	Mand	6.1	-21.0	14.4	1.5	42.8	15.6	0.20	3.2	572
A 84 I	F	Mand	3.4	-20.3	14.6	1.3	41.7	15.1	0.20	3.2	557
A 149 I	F	Mand	2.1	-20.1	14.1	3.1	42.3	15.3	0.19	3.2	595
A 159 I	F	Mand	5.7	-21.1	10.8	4.2	42.2	15.3	0.20	3.2	563
Mean				-20.2	13.1	6.3					
S d				0.7	1.2	3.0					

Table 4: Stable isotopes of carbon, nitrogen and sulfur, in animal samples from Västerås

Species	Bone	Collagen (%)	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	% C	% N	% S	C/N	C/S
Esox	Vert	1.4	-20.1	13.0	-	37.8	13.7	~~0.50~~	3.2	~~202~~
Esox	Mand	5.1	-21.5	16.0	~~0.1~~	42.9	15.9	~~0.43~~	3.2	~~266~~
Sus	Hum	3.4	-22.2	8.8	1.6	39.9	14.4	0.19	3.2	561
Sus	Hum	6.8	-21.8	9.7	4.3	42.3	15.2	0.22	3.2	531
Ovis/capra	Hum	1.8	-21.0	5.1	2.4	38.6	13.8	0.21	3.3	490
Capreolus	Cox	10.0	-21.5	7.9	6.1	41.7	14.9	0.20	3.3	557
Gallus	Fem	6.9	-21.3	12.0	1.2	40.8	14.6	0.22	3.3	495
Gallus	Fem	6.0	-21.3	12.4	4.6	40.4	14.5	0.24	3.3	450
~~Sus~~	~~Rad~~	~~0.0~~	-	-	-	-	-	-	-	-
~~Sus~~	~~Rad~~	~~13.9~~	~~-23.6~~	~~12.1~~	~~10.8~~	~~42.9~~	~~11.4~~	~~0.15~~	~~4.4~~	~~763~~
~~Bos~~	~~Rad~~	~~9.1~~	~~-22.9~~	~~5.7~~	~~0.8~~	~~42.3~~	~~12.2~~	~~0.16~~	~~4.0~~	~~705~~
~~Bos~~	~~Rad~~	~~7.9~~	~~-23.1~~	~~6.5~~	~~3.9~~	~~42.3~~	~~12.6~~	~~0.16~~	~~3.9~~	~~706~~
Cervus	Mt3-4	1.8	-22.6	4.7	-	40.6	14.1	-	3.3	-
Mean			-21.5	10.0	3.4					
Sd			0.7	3.8	1.9					

An analysis of a newly discovered document on food consumption and nutrition at Västerås castle, 1517-1520 was published in 2018 (Retsö, 2018). The results of this study show a similar picture as earlier studies regarding diet in the Swedish castles of Nyköping and Stegeborg, referred to in Paper I (Söderberg, 2015), with consumption of meat and dairy making up a larger proportion of the diet than fish. It is notable that the consumption of fish increases at Västerås castle during Lent, however, and that there is no meat consumption recorded during those periods. A similar period without meat consumption during Lent was also recorded at Raseborg castle (Kivikero, 2020:77). Söderberg and Kivivero discuss how fasting during a specific fasting period – Lent – could be seen in their source materials, and this could be seen as a general indication that the rules of fasting were followed. The regular diet at Västerås castle was dominated by neither meat nor fish, however, but by bread (Retsö, 2018).

5.2 Paper II: Medieval masculinities and violence

Earlier research has shown that the role of violence varied between different masculinities, and in particular between lay and clerical masculinities. While physical violence, used in an appropriate manner and within certain rules, was an accepted way to enact lay masculinity, the use of violence was much more restricted in clerical masculinities (Gilchrist, 2009; Karras, 2003; Smith, 2011). Considering this difference in masculinities, it was expected that laymen would use violence more frequently, be more exposed to violence, and display a higher frequency on weapon-related trauma, compared to clergy.

A total of 128 individuals from Skriðuklaustur and 342 individuals from Västerås were analysed, and weapon-related trauma was detected in seven individuals in Skriðuklaustur and 55 individuals in Västerås (Tables 5 and 6). The trauma was categorised as sharp-force

trauma (including projectile injuries) and blunt force trauma. Postcranial blunt force trauma, such as fractures to the ribs, was not included, as the cause of injury is hard to establish in individual cases. The analysis also considered whether the weapon-related trauma occurred antemortem (before the time of death) and was healing or healed, or perimortem (around the time of death) and there were no signs of healing or bone remodelling.

Table 5: WRT, distribution by sex, age, and social group (crude prevalence), Skriðuklaustur

Group	**Total (n)**	**WRT (n)**	**WRT (%)**
Sex			
Male	51	3	5.88
Female	64	3	4.69
Unknown sex	13	1	7.69
Age			
Adolescent	21	1	4.76
Young adult	35	0	0.00
Middle adult	52	4	7.69
Old adult	17	2	11.76
Adult	3	0	0.00
Social group			
Canon	8	0	0.00
Layperson	33	2	6.06
Patient	83	5	6.02
Benefactor	4	0	0.00
Total	128	7	5.47

Table 6: WRT, distribution by sex, age, and social group (crude prevalence), Västerås

Group	**Total (n)**	**WRT (n)**	**WRT (%)**
Sex			
Male	260	51	19.62
Female	66	3	4.55
Unknown sex	16	1	6.25
Age			
Adolescent	53	7	13.21
Young adult	69	8	11.59
Middle adult	197	35	17.77
Old adult	23	5	21.74
Social group			
Area A	93	11	11.83
Area B	49	13	26.53
Area C	23	3	13.04
Area D	6	1	16.67
High status: Areas A–D	171	28	16.37
Low status: Area E	170	27	15.88
Unknown	1	0	0.00
Total	342	55	16.08

There was a significant difference in the frequency of weapon-related trauma when comparing males and females, and also in different groups of males. On the whole, females (4.7% in Skriðuklaustur and 4.6% in Västerås) were less frequently affected by weapon-related trauma than males (5.9% in Skriðuklaustur and 19.6% in Västerås), but that did not apply to all males. In Skriðuklaustur none of the males identified as Augustinian canons displayed weapon-related trauma, and nor did any of the lay brothers. The few males who were injured were patients at the hospital. A lay person of undetermined sex and a lay woman were among the individuals with weapon-related trauma (Figure 20).

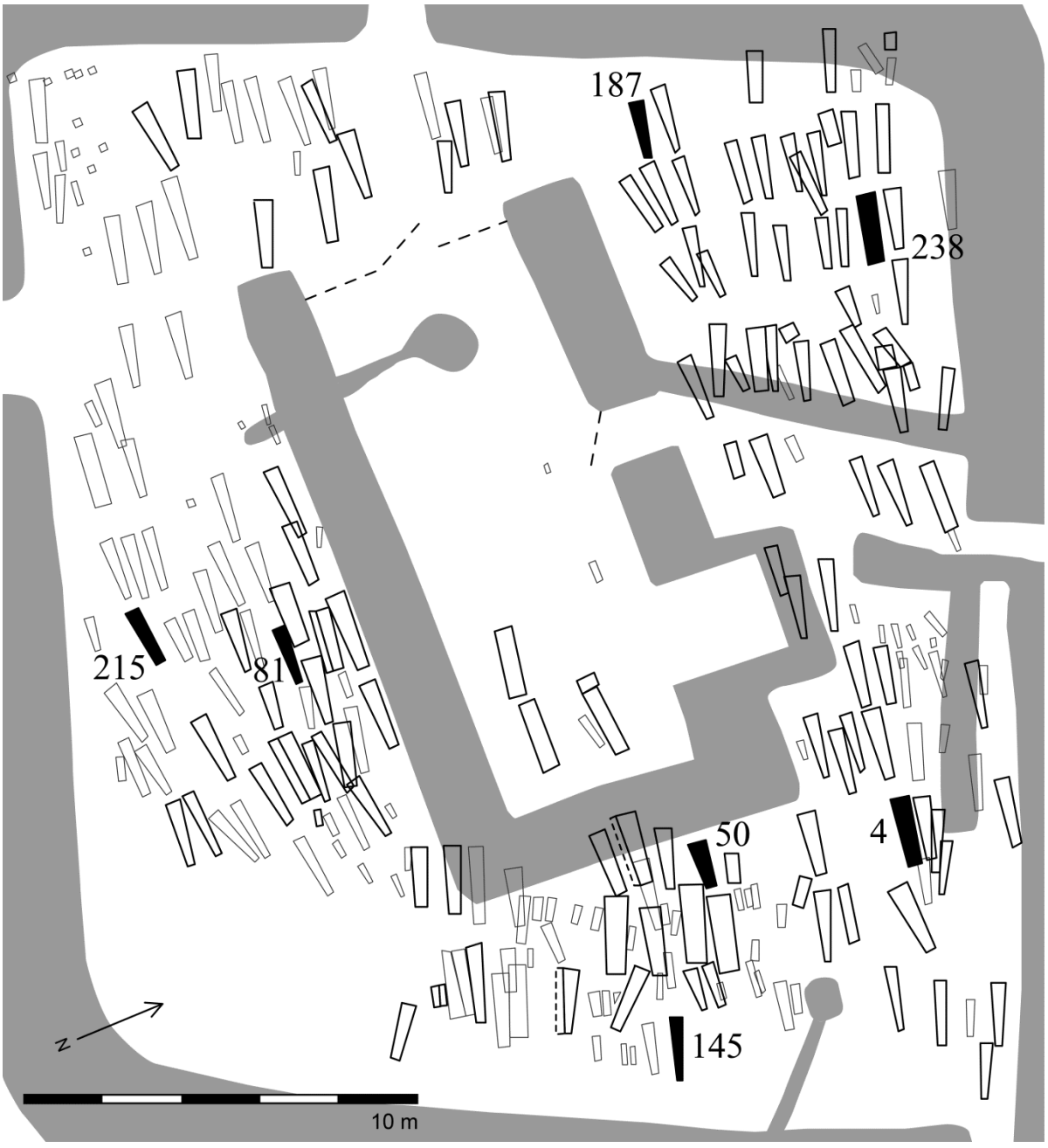

Figure 20: Plan drawing of the church and cemetery at Skriðuklaustur, burials of individuals with weapon-related trauma marked in black

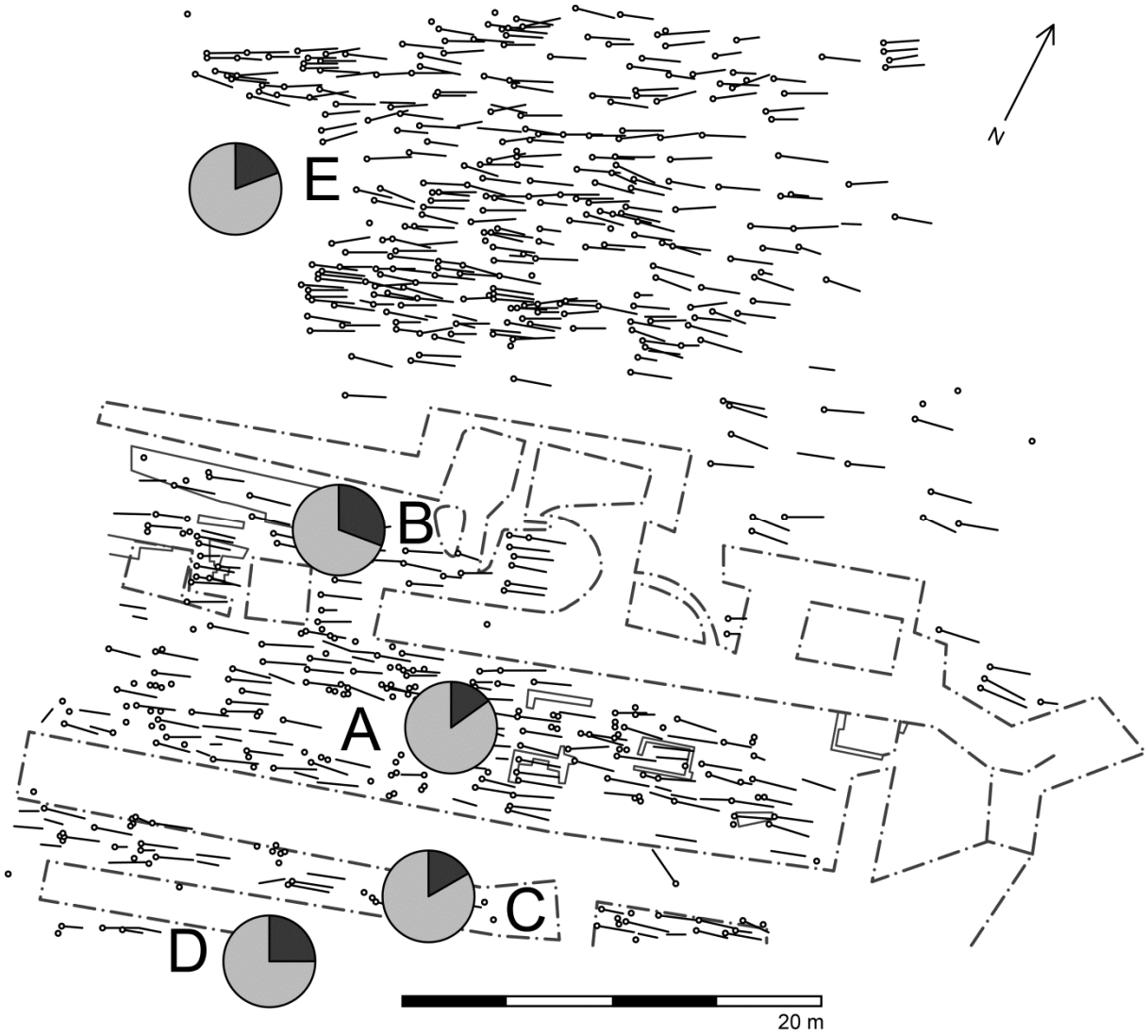

Figure 21: Plan drawing of the church and cemetery at Västerås, frequencies of weapon-related trauma among males in areas A-E indicated by pie charts

The clerics were not identified at Västerås. The frequencies of weapon-related trauma among males were higher than in Skriðuklaustur, but also varied between different burial areas. It was particularly common among males buried in the northern aisle of the church, where 30.77% of the males had this type of injury (Figure 21). Both sharp-force trauma (indicating battle experience) and blunt-force trauma was frequent in this group. They are interpreted as laymen of high social standing; some perhaps professional warriors. Compared to other groups of males, they appear to have been more exposed to violence both on and outside the battlefield. In Västerås, the most frequently occurring type of weapon-related trauma was antemortem blunt-force trauma to the frontal bone (Figure 22). This was a reoccurring pattern, and it appears that there was a specific way to use interpersonal physical violence; face to face, using blunt weapons, and aiming for the head – rather than the face – of the opponent.

Figure 22: A 164 I, an elderly male, with a healed blunt force trauma to the frontal bone

The results of this study support previous research on the role of violence in lay and clerical masculinities, in stressing the effect of different masculine ideals on men's behaviour and the resulting injuries. It brings more detail to the type of injuries sustained, and stresses that the use of violence severe enough to fracture the cranial bones was widespread even away from the battlefield.

5.3 Paper III: Performing masculinities through violence and warfare

The results of the analysis of weapon-related trauma presented in the Paper II – *Medieval Masculinities and Violence* were further discussed in this study, focusing on the performance of masculinity in battle. This study only included the 342 individuals from Västerås, however, as too few individuals in the Skriðuklaustur material displayed weapon-related trauma. The individuals with perimortem injuries were also investigated in more detail. What was of interest regarding masculinity as a performative practice, was not only whether males used violence, but more specifically the way in which violence was used to enact masculinity. Being a victim of violence was also central to the discussion. The prominent part played by the male body in the performance of masculinity meant that masculinity could be vulnerable

to bodily changes, for example due to injury (Connell, 2005; Shilling, 2016). This is highly relevant in warrior masculinities, where exposure to risk of physical injury is integral.

Table 7: Radiocarbon dating of samples from the Västerås Dominican priory. Individuals with weapon-related trauma: Ua-59190-Ua-59194. F – female, F? – probable female, M – male, M? – probable male, - – sex unknown (lose bone element), Mand – mandibula, Hum – humerus, Rad – radius, Fib – fibula, Fem – femur.

Lab no	Grave	Sex	Bone	$\delta^{13}C$‰	^{14}C age BP	Calibrated date (95.4% probability)
Ua-59190	B 19 II	M	Mand	-19.4	521±32	1310–1350 AD (14.2%), 1390–1450 AD (81.2%)
Ua-59191	E 49 II	M	Mand	-18.6	428±32	1420–1520 AD (89.5%), 1590–1620 AD (5.9%)
Ua-59192	E 56 I	M	Mand	-19.9	433±33	1410–1520 AD (90.6%), 1600–1620 AD (4.8%)
Ua-59193	E 200 I	M?	Hum	-20.6	479±37	1390–1480 AD (95.4%)
Ua-59194	E 341 I	M	Mand	-19.6	405±31	1430–1530 AD (78.2%), 1570–1630 AD (17.2%)
Ua-61521	A-D (1)	-	Rad	-19.4	633±28	1280–1400 AD (95.4%)
Ua-61522	A-D (2)	-	Rad	-20.1	528±29	1320–1350 AD (16.6%), 1390–1450 AD (78.8%)
Ua-61523	A 9	F	Ulna	-19.1	659±29	1270–1330 AD (47.0%), 1340–1400 AD (48.4%)
Ua-61524	A 16	M	Fib	-19.4	663±28	1270–1320 AD (49.0%), 1340–1400 AD (46.4%)
Ua-61525	A 82	M?	Hum	-19.4	858±29	1050–1090 AD (8.0%), 1120–1140 AD (1.3%), 1150–1260 AD (86.1%)
Ua-61526	B 21 II	M	Rib	-19.1	402±28	1430–1530 AD (79.1%), 1570–1630 AD (16.3%)
Ua-61527	B 160	F	Ulna	-20.2	657±28	1270–1320 AD (46.0%), 1340–1400 AD (49.4%)
Ua-61528	C 37	F	Fem	-20.2	392±28	1440–1530 AD (72.6%), 1570–1630 AD (22.8%)
Ua-61529	C 78	M	Fib	-19.6	429±29	1420–1500 AD (91.4%), 1600–1620 AD (4.0%)
Ua-61530	D 41	F?	Rad	-20.1	501±29	1395–1450 AD (95.4%)
Ua-61531	D 45	M	Fib	-20.0	556±29	1300–1360 AD (45.9%), 1380–1430 AD (49.5%)
Ua-61532	E 101, 176 I	F	Rib	-20.0	679±29	1270–1320 AD (60.0%), 1350–1390AD (35.4%)
Ua-61533	E 101, I76 II	M	Hum	-19.8	536±28	1310–1350 AD (23.1%), 1390–1440AD (72.3%)

Initially the investigation addressed questions regarding which groups of individuals were injured or killed (age, sex, burial location, previous injuries), what type of weapons were used (sharp/blunt/projectile, size, shape), and how the injuries were sustained (direction, situation). Sixteen individuals (including five males with perimortem weapon-related trauma), and two human bones from the comingled remains, were sampled for radiocarbon dating at the Tandem Laboratory, Uppsala University (Ua-59190–Ua-59194; Ua-61521–61533) (Table 7). The radiocarbon dating enabled a time frame to be set, and comparisons to historically known conflicts in the area (Table 8, Figure 23). The aim was to use the osteologically identified patterns of weapon-related trauma to discuss how masculinity was performed in relation to battle and other violent encounters in late medieval Sweden. This referred not only to the use of violence, but also other behaviours in a battle context.

Table 8: Sieges and battles in the Västerås area, in the fifteenth to early sixteenth centuries. Based on Kumlien (1971:217-237, 252, 312-316), Hedlund (1990:34-46, 55, 62-64), and Sundberg (2002:248, 262,329-330, 382-382, 400)

1434 Västerås As part of a rebellion, led by Engelbrekt Engelbrektsson, against the Kalmar Union king Eric of Pommerania, Västerås castle was surrendered to the rebels without battle.
1436 Västerås As part of a peasant uprising, led by Erik Puke, against the Swedish regent Karl Knutsson, Västerås castle is besieged by the peasants. They are defeated, some are captured, and others are killed.
1437 Haraker "Hällaskogen" In a battel at Haraker, north of Västerås, a peasant uprising led by Erik Puke defeats the troops of the Swedish regent Karl Knutsson.
1464 Västerås The troops of Kalmar Union king Christian I besiege Västerås castle, but the siege is cancelled when enemy troops are approaching.
1464 Haraker Mustered peasants lead by the bishop Kettil Karlsson defeat the troops of the Kalmar Union king Christian I.
1464 Västerås The Kalmar Union king Christian I make another attempt to take Västerås castle, this time by sea. The attempt fails.
1469 Västerås As part of a rebellion against the Swedish king Karl Knutsson, rebels led by Erik Karlsson Vase besiege Västerås castle. They are driven away by peasants from Södermanland, led by Sten Sture.
1501 Västerås As part of an uprising, led by Sten Sture and others, against the Kalmar Union king Hans, Västerås castle is besieged.
1520 Västerås During a war between the Swedish regent Sten Sture, and the Kalmar Union king Christian II, the Danish/unionist troops besiege Västerås castle. The castle is taken, and the bailiff executed.
1520 Badelunda Rebels are trying to stop unionists from marching from Västerås to Uppsala. At Badelunda, outside Västerås, there is a battle, where the unionists suffer losses, but manage to break though and continue to Uppsala.
1521 Västerås During an uprising led by Gustaf Eriksson (later to become king of Sweden), against the Kalmar union king Christian II, unionist troops are defeated at a battle outside and in Västerås.
1521 – 1522 Västerås Following the battle of Västerås, Västerås castle is besieged by rebels. The castle is surrendered the following year.

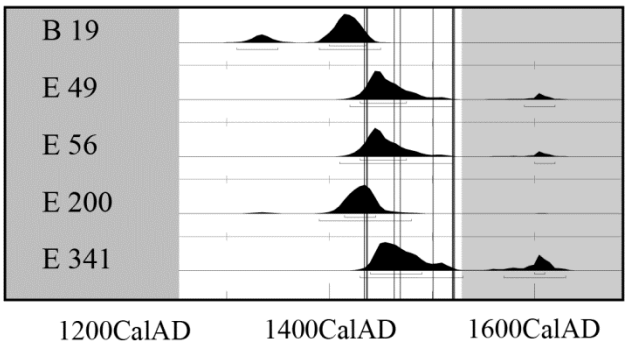

Figure 23: Diagram of radiocarbon dates of individuals with perimortem/healing weapon-related trauma, with battles and sieges listed in Table 8 marked in the timeline

The analysis of weapon-related trauma showed that ten males in the age range c. 20 to 40-55 years, and no females, displayed weapon-related injuries that were unhealed or in the early stages of healing (Table 9). Their demographic profile, and the fact that as many as four out of ten also had healed weapon-related trauma, suggests that they could have been more or less professional warriors, or at least have some warrior experience. According to the radiocarbon dating, they died in the fifteenth to early sixteenth centuries, a time of conflict, when Västerås castle were repeatedly besieged, and several battles in the Västerås area are known from historical sources.

Table 9: Individuals with perimortem weapon-related trauma in Västerås. Abbreviations: WRT – weapon-related trauma, SFT – sharp force trauma, BFT – blunt force trauma, PT – projectile trauma, M – male, M? – probable male

Grave	Sex	Age	Perimortem WRT	Ante-mortem WRT	Ante-mortem postcranial fractures
B 19 II	M	30-40	SFT left parietal bone		Compression fracture (spondylolysis), L5
C 63 II	M	20-30	BFT frontal bone		
E 49 II	M	30-40	SFT left parietal bone (active healing)	BFT frontal bone	Rib fracture with callus formation
E 50 I	M	40-50	SFT frontal bone (active healing)		
E 55 I	M	30-40	SFT C5-6		
E 56 I	M	30-40	SFT C7	PT sphenoid bone BFT right zygomatic bone	Two rib fractures with callus formation
E 57 I	M	18-22	SFT C3-4		Compression fracture(?), intra-articular fracture in the distal joint, right tibia; Bipartite acetabulum, left osischium
E 200 I	M?	30-45	PT frontal bone	SFT (*n* 2) left parietal bone	Three rib fractures with callus formation; Myositis ossificans, left femur ; Fracture and osteomyelitis, first ph of the hand
E 341 I	M?	35-50	SFT left parietal and occipital bones	BFT frontal and right parietal bones	

E 369 I	M	40-55	BFT frontal bone	Fractures with callus formation in the left clavicle and eleven rib fragments

The late dates could not be explained by only later burials being preserved *in situ*, as individuals without weapon-related trauma were dated to the entire period in which the Dominican Priory in Västerås operated.

The results from the initial analysis were used to discuss different ways to perform masculinity in battle related activities in the follow-up study. Looking at the trauma pattern in general (not only perimortem trauma), most of the injuries were probably sustained in face-to-face encounters, as the face and forehead are the most targeted areas. The victims were in most cases adult males. This fits with rules of honourable fighting and could have been a violent – but still socially accepted – way to enact masculinity. The archaeological context, the burials at the Dominican priory in Västerås, also suggests another, non-violent, way to perform masculinity in association with battle. The Dominican brothers, treating the wounded and burying the dead, offered spiritual care to the men injured or killed in battle. This could be a way to enact tenderness and care, but also authority.

While this case study presents some examples of how the performance of warrior masculinity could be manifested in skeletal material, the vast majority of the more than 2000 individuals buried at the Västerås Dominican priory are yet to be examined. Further analysis and radiocarbon dating could shed more light on medieval masculinities, and the violent events in the Västerås area in the late medieval period.

5.4 Paper IV: Clerical masculinity, ability and appearance

A medieval priest was required to possess a complete adult male body, without any blemish, and bodily disorders could cause irregularity, and disqualify someone from office (Gilchrist, 2009; Metzler, 2006). Dispensations could be given by the Apostolic Penitentiary, provided the defects posed no hindrance to performing services at the altar or caused a scandal (Risberg and Salonen, 2008). This case study of embodied clerical masculinity focuses on a part of the body particularly important to clerical masculinity: the mouth and its teeth. The ability to speak was of central importance to medieval clerics, as speech activities, such as praying, singing, and speaking in public, were part of the performance of clerical masculinity (Kerr, 2009). Studies in contemporary contexts give indications of how poor oral health causes problems such as difficulties with chewing and speech impediments, although they also caution against making direct links between clinical manifestations and the subjective experience of oral health (Foerster et al., 1998; Gotfredsen and Walls, 2007; Ikebe et al., 2002; Molly et al., 2008). Further, it has been suggested that physical appearance could have been equally, if not even more, important than ability for medieval clerics (Parlopiano, 2015). If a cleric had physical impairments, laity might interpret this as a sign of sinful behaviour and divine punishment, and lose respect for the cleric and the Church. Using a case study of Augustinian canons from late medieval Iceland, the aim was to identify patterns of antemortem tooth loss and to discuss the effect of oral health on physical appearance and speech, and – by extension – on the ability to perform clerical masculinity.

The study osteologically analysed 124 individuals buried at the medieval monastery Skriðuklaustur. Only individuals where at least one tooth, or tooth position in the alveolar bone, was observable were included in the study. The individuals represented Augustinian canons, benefactors, lay brothers and sisters, and patients of the hospital (Kristjánsdóttir, 2010, 2012). The study focused on antemortem tooth loss, but the oral health of the canons was examined in more detail, and also included the identification of caries, periapical lesions, periodontitis, occlusal wear and deposits of dental calculus (see Section 4.1.5).

Table 10: Ante mortem tooth-loss (AMTL) in different groups at Skriðuklaustur. Age groups: Young <35 years, old >35 years. Patients in the burial grounds north and east of the church presented separately

	Individuals			**Observable tooth positions**		
	n	**AMTL (n)**	**AMTL (%)**	**n**	**AMTL (n)**	**AMTL (%)**
Males	49	21	42.86	1480	97	6.55
Females	62	31	50.00	1934	205	10.60
Unknown sex	13	3	23.08	363	19	5.23
Young	49	9	18.37	1533	15	0.98
Old	68	43	63.24	2035	300	14.74
Unknown age	7	3	42.86	209	6	2.87
Benefactors	4	0	0.00	125	0	0.00
Monastic	9	4	44.44	265	29	10.94
Laity	32	12	37.50	933	87	9.32
Patients (north)	63	29	46.03	1977	113	5.72
Patients (east)	16	10	62.50	477	92	19.29
Total	124	55	44.35	3777	321	8.50

Table 11: Ante mortem tooth-loss (AMTL) in different groups at Västerås. Age groups: Young <35 years, old >35 years. Burial areas: A-C – Church; A – nave and choir, B – north aisle, C – south aisle, D – cloister, E – cemetery

	Individuals			**Observable tooth positions**		
	n	**AMTL (n)**	**AMTL (%)**	**n**	**AMTL (n)**	**AMTL (%)**
Males	220	85	38.64	6124	287	4.69
Females	57	29	50.88	1688	214	12.68
Unknown sex	13	6	46.15	355	19	5.35
Young	102	22	21.57	2941	46	1.56
Old	188	98	52.13	5226	474	9.07
A	71	30	42.25	1950	150	7.69
B	43	21	48.84	1144	76	6.64
C	18	6	33.33	446	22	4.93
D	5	2	40.00	134	4	2.99
A-D	137	59	43.07	3674	252	6.86
E	152	60	39.47	4469	265	5.93
Unknown	1	1	100.00	24	3	12.50
Total	290	120	41.38	8167	520	6.37

Antemortem tooth loss was identified in 55 of 124 individuals (44.4%), and out of the 3777 observable teeth/tooth positions 321 (8.5%) had been lost antemortem (Table 10). Most of the individuals with tooth loss had lost only one or a few teeth; however, 12.1% of the examined individuals had lost at least a quarter (eight or more) of their teeth. This extensive tooth loss was twice as common in females as in males, and only occurred in individuals over 35 years of age. The central incisors of the maxillae were the teeth most frequently lost. Oral health varied among the five Augustinian canons. While no antemortem tooth loss could be identified in three of them (Figure 24), one had lost three posterior teeth (Figure 25), and one had lost at least thirteen teeth (Figure 26).

Figure 24: Maxillae and mandible of SKR 63, an adolescent male with no antemortem tooth loss, though one of the incisors in the mandible (likely 41) is congenitally absent

Figure 25: Left maxilla and mandible of SKR 39, an elderly male, who has lost three teeth (27, 28, 34) antemortem

Figure 26: Mandible of SKR 36, a middle aged male, who had extensive antemortem tooth loss, including all incisors in the mandible (31, 32, 41, 42)

The pattern of tooth loss identified in Skriðuklaustur was not unexpected, as tooth loss generally increases with advancing age, and females tended to have poorer oral health than males in many past populations (Lukacs, 2017; Witwer-Backofen and Engel, 2018). This is also the case in Västerås (Table 11). The high degree of lost anterior teeth stands out. One possible explanation for this is that molars are often affected and lost due to caries, and caries were very uncommon in medieval Iceland (Richter and Eliasson, 2018). The loss of anterior teeth is highly visible, and could have affected both appearance and the ability to speak clearly.

Paper IV emphasised the different connotations related to different patterns of tooth loss. The loss of anterior teeth in younger individuals with good oral health, perhaps due to trauma, was suggested to be associated with violence and aggressive behaviour, which could be regarded as inappropriate or transgressive in clerics. The loss of anterior teeth as part of general tooth loss and poor oral health (e.g. in the Skriðuklaustur canon who had lost thirteen teeth), was believed instead to be associated with ageing, declining health and femininity. This might not

conform to the ideals of masculinity and bodily perfection, but could hardly have been regarded as scandalous, or have caused irregularity.

The five clerics included in the study serve as example of the diversity of oral health in this group, but are too few to draw any general conclusions about oral health among medieval Icelandic clerics. A larger and more diverse sample, including, for example, parish priests or members of other orders, would be required. Other types of sources would also have to be used to further explore the individual experience of oral health and its effect on appearance, ability and masculine identity, together with the human skeletal remains.

6. Discussion

6.1 Common features

Scholars have found the modern concept of masculinities applicable and useful in medieval studies, and a multitude of medieval masculinities have been explored in recent decades (see above, Section 3.4). The concept of hegemonic masculinity has also been used in analyses of medieval gender relations. Connell defines hegemonic masculinity as "the configuration of gender practice which embodies the currently accepted answer to the problem of the legitimacy of patriarchy" (Connell, 2005:77). As Coles suggested "it makes little sense to use patriarchy to describe the power differentials in and between various subpopulations of men where much of the tensions and struggles over masculinities occur" (Coles, 2009:33). According to Karras (2003:11) this was the case in medieval Europe, where masculinities were mainly created in the relations between men. One solution could be to separate the external hegemony related to patriarchy from an internal hegemony between men, as suggested by, for example, Demetriou (2001), Connell and Messerschmidt (2005), and Christensen and Jensen (2014). Focusing on the power relations between men, Coles (2009) presents a model which allows for multiple positions of domination (described in Section 3.2), which might be more useful to help understand medieval gender relations, where positions of power included, for example, both lay and clerical elites. These powerful men would have had the greatest authority to define and defend ideals, but also been in the strongest position to challenge them (Skogstrand, 2010). Considering the similarities between different medieval masculinities, it would therefore not be surprising if both lay and clerical ideals have influenced them.

With the reservation that all men were supposed to enact masculinity according to their designated place in society, Karras (2003) suggests that the knightly masculinity of the lay elite is the closest we get to a hegemonic masculinity in medieval Europe. This knightly masculinity has been described by Knüsel (2015) as the epitome of archetypal masculinity, and he characterises it as refined tastes and manners, skills in weapons use, warfare and horsemanship, the possession of social connections and the power and practice of leadership. Lineage (and by extension virility and fecundity) also had great importance. The ideal knight was energetic, ambitious, competitive, aggressive, independent, wealthy, loyal, brave and

reverent. Among his physical attributes, he had an imposing stature, a well-proportioned body and was lithe but of muscular build (Knüsel, 2015:747).

Many of the attributes included in this description of knightly masculinity would have appealed to a larger group of men, such as being energetic, brave and powerful, however, when discussing masculinity as configurations of gender practice (Connell, 2005:72), it is important to note that these masculine qualities had to be enacted in different ways, and adapted to the circumstances. For example, enacting bravery in battle was characteristic of knights, but also a possibility for men of lower social standing, albeit in a different arena. The importance of physical violence in medieval masculinities has been proposed (e.g. Ekholst, 2014:80; Karras, 2003:6-7). This not only applies to violence in warfare, but also in other situations, such as feuding and defending oneself, one's dependants, property, and, not least, personal honour (Ekholst, 2014:210-211). However, there were rules to follow, and they were different for different groups of men. As physical violence was used to maintain established power relations, it could generally only be directed downward on the social ladder. This also applied to gendered power relations, as a husband was allowed to chastise his wife, but not the opposite (Jansson, 2006:158). For clerics, the use of violence was more restricted than for lay men, but still allowed in certain situations, such as in disciplinary or self-directed violence to facilitate humility (Smith, 2009). There were other options open to clerics who wanted to enact warrior-like qualities such as bravery and strength. There were also spiritual battles to be fought, against the devil and the temptations of the flesh (Smith, 2011; Thibodeaux, 2006). By using metaphors of warfare to describe the clerics' spiritual work, the connotations to knightly bravery in the battlefield were emphasised.

That some aspects of knightly masculinity – such as the use of physical violence – appear to have had a great influence on the masculinities of other groups of men, including clerics, is hardly surprising considering the dominant position of knights in society, and of knightly masculinity in the field of masculinity. However, it was not directed only one way; the religious ideals also had a great impact on lay masculinities. Attributes such as piety, humility, and self-control were also embraced by the lay elite, and were part of the knightly masculinity. In the same way that clerics could describe their spiritual work as battles against the devil, warriors could claim that their participation in warfare was a form of penance (Kaeuper, 2001; Keen, 1984). This was particularly true for crusading, which was considered a form of pilgrimage, and where death in battle could be defined as martyrdom (Spacey, 2019). While the holy cause of crusading set it apart from other types of warfare, the legitimacy of war was always an important issue. Aligning the waging of war with Christian ideals of peace and love was problematic, and theologians had presented ideas on just war, and what defines it since antiquity. This includes both a just cause of war – such as the restoration of peace, vindication of justice, and defence of the realm – and a just manner of war – minimising damage and excluding non-combatants. This could be compared to crusading, which was not about restoring peace, and where opponents were killed indiscriminately (Bainton, 1960:14-15, 148; Cahill, 1994:93, 121-122). It was not always easy or practicable to follow these rules, even though they were more pragmatic than the ideals of pacifism (Bainton, 1960:103-104). Christian ideas about just war could not be ignored,

however, and the medieval rules of war were not only based on canon law or scholastic theology, but also regulated in secular law, as well as the chivalric code of conduct (Cahill, 1994:93).

The results of the dietary study in Västerås presented in Paper I could be seen in the light of this interaction between different masculinities, influencing each other and setting general standards. It could be expected that diet differed between different groups of males, for example depending on socioeconomic status. Such differences could be seen in historical sources. For example, a royal decree from 1347, regarding Kopparberget (the main copper-producing district in Sweden), specified the wage in kind for two groups, skilled and unskilled labourers. The daily intake of meat and dairy for skilled labourers was double that for unskilled labourers (Söderberg, 2015). Historical accounts also shows the effect of the Church's rules on the diet of religious households – for example in both the household of Hans Brask, Bishop of Linköping, and at Vadstena Abbey, the meals were organised according to the fasting days, although compared to the abbey, the bishop's menu included more luxurious dishes (Lindberg, 2016).

The hypothesis above, presented in Paper I, stipulated a dietary difference between laity and clerics. As meat-eating was regarded as very carnal, increasing heat and virility in the consumer, and the church had imposed rules on fasting and the avoidance of meat, it was expected that the diet of laity and clerics would differ. In the stable isotope analysis, clerics were expected to demonstrate enriched nitrogen values, indicating a fish-rich diet, while laymen and laywomen were expected to display more depleted nitrogen values, representing a diet including less fish. Unfortunately, it was not possible to identify the clerics among the individuals buried at Västerås, preventing this type of comparison. Nevertheless, the results of the analysis showed that laypeople also followed the fasting rules, as males and females buried in different parts of the church and cemetery in general demonstrated isotope values indicating a diet rich in freshwater fish. This was a small study, only including 22 individuals, however, similar results have been found in earlier studies. No significant difference in isotope values between friars and laity could be detected at the Carmelite friary at Aalst, Belgium and the Gilbertine priory of St Andrews in York (Müldner and Richards, 2007a; Quintelier et al., 2014). At the Øm Kloster Cistercian monastery, Denmark, the diet of the monks changed over time, from a peasant-like diet to an elite-like diet (Yoder, 2012). Stable isotope results also indicate that there was a general trend in medieval England wherein fish became an increasingly important food source, and this has been connected to the fasting rules imposed by the Christian church (Müldner and Richards, 2007b).

Paper I stresses that the diet and dietary rules were an area where the church had great authority, and where clerical ideals could become general ideals. To refrain from carnal pleasures by fasting could therefore be a way to enact masculine qualities such as self-control and piety by clerics and laity alike. The ideal of religious fasting also applied to women; the contrast was rather with uncivilised or non-Christian people (cf. Karras, 2003:11-12). In Paper I, this is understood as an example of how hegemonic masculinity absorbs aspects of subordinate masculinities and adapts to new circumstances (Demetriou, 2001). Applying

Cole's (2009) model of *the field of masculinity* to the situation, elite clergy represented a dominant masculinity within the subfield of clerical masculinities, and were not only well suited to defining ideals within their subfield, but also to challenging the prevailing notions of masculinity within the field as a whole. The agency of non-hegemonic masculinities does not have to be described as merely presenting alternatives for the hegemonic masculinity to appropriate. In many fields the elite laity held a dominant position, but in some, for example regarding spiritual matters, the clergy had the authority to define general ideals of masculinity.

6.2 Diversity

Just as in contemporary society, on which the theoretical models of masculinity used in this thesis are based (e.g. Coles, 2009; Connell, 2005; Connell and Messerschmidt, 2005), scholars have found that there was a diversity of masculinities in medieval Europe (e.g. Hadley, 1999; Karras, 2003; Lees et al., 1994). The intersections of different aspects of identity, such as gender, age, socioeconomic status and health, create a multitude of different positions in the field of masculinity. One of the most fundamental divides pointed out by previous research was between clergy and laymen (e.g. Murray, 2004; Nelson, 1999; Swanson, 1999). Clergy and laity could be presented as opposites, where clerical ideals rejected core aspects of lay masculinity (such as impregnating women, protecting dependants, and serving as provider to one's family, according to by Bullough (1994)). Masculinity without sex and violence might appear contradictory, and raise the question of whether it is masculinity at all, and not a third gender (Swanson, 1999). Allowing for a diversity of masculinities, there is no need to dismiss clerical ideals as less masculine or not masculine at all (Aird, 2011). The dominance of lay ideals appears to have made them difficult for the clergy to ignore. Thibodeaux (2006) has discussed how the rules of chastity for secular clergy imposed by the Christian church had an effect on the masculinity of parish priests in Normandy. While it was launched as a superior masculinity, not everyone was convinced, and some parish priests continued to do masculinity the same way as laymen; by fighting, hunting, gambling and having sex.

One of the major differences between lay and clerical masculinities was the role of violence. While the use of physical violence was regulated both for laymen and clergy, the situations where violence was acceptable, and could be regarded as a performance of masculinity, differed between laity and clergy. The effect of this difference on behaviour and thereby on bodily injuries was examined in Paper II, through the analysis of weapon-related trauma among individuals buried at Skriðuklaustur and Västerås. The results showed that there was not only a significant difference in weapon-related trauma between males and females (males having more injuries) but also between different groups of males. No weapon-related trauma was identified among the Augustinian canons or among the lay brothers at Skriðuklaustur, only in patients, and lay people who were not male. At the same time frequencies of weapon-related trauma of up to 30.77% were found among laymen in Västerås (Paper II). These results are expected, considering the different masculinities of these groups of men. If a larger sample was examined, then some clerics with weapon-related trauma would probably be

found. There are examples known, both from the osteological record, such as a cleric with perimortem blade wounds identified at the Gilbertine priory St Andrew in York (Sullivan, 2004), and from historical records, such the Dominican brother Johannis Petri in Västerås, who killed a man in a fight (Risberg and Salonen, 2008:128, 389-390). These examples of transgressions do not change the overall impression that ideals had an impact on what men actually did. When considering masculinity as practice, the violent/non-violent enactments of masculinity formed different male bodies and at the same time formed perceptions of what constituted masculinity for laity and clerics.

The pattern of weapon-related trauma indicates that there was not only a divide between lay and clerical masculinities, there was also diversity among laymen. The results of the trauma study point to an association between the lay elite, warrior identity, and weapon-related trauma. That males in the lay elite were particularly exposed to violence has been observed in earlier studies, where weapon-related trauma has been identified among males buried in high status areas (Møller-Christensen, 1982; Mollerup, 2003; Sellevold, 2001; Sullivan, 2004). In Västerås this was particularly seen in the burials in the northern aisle of the church, where both sharp force trauma (interpreted as injuries from battle) and smaller healed blunt force trauma (interpreted as injuries from various settings, primarily outside the battlefield) were frequent among males. Further, in the most exclusive burials, in brick tombs by the high altar of the church, three out of the seven males examined displayed weapon-related trauma. It has been pointed out that men who possessed socioeconomic power were able to pay fines for committing acts of violence, and even killing opponents in feuds, while men without these economic resources had to settle their conflict using verbal abuse or lesser violence (Lindström, 2008; Þorláksson, 2007). This socioeconomic difference not only applied to laity in the Nordic countries, but bishops who armed themselves and actively participated in battle were generally accepted by their contemporaries (Waśko, 2018). This emphasises that intersections with other aspects of identity have to be considered when discussing masculinities (Christensen and Jensen, 2014). Gender and a privileged socioeconomic position could sometimes be more important than the division between laity and clerics. Masculinity, socioeconomic status and power were interrelated. Physical violence, as well as economic violence, could be used to dominate other men. From this perspective, the low frequency of weapon-related trauma identified among males in Skriðuklaustur could reflect that few men from the elite were buried there.

While violence was identified as particularly common among warriors, there was also diversity within this group. This was further explored in Paper III, where the knightly masculinity of the lay elite was contrasted with warrior masculinities among the mercenaries and part-time peasant-soldiers of the late medieval period. Neuding Skoog (2014) has pointed out that mercenaries were not only distinguished by their warrior skills, they were also known for their bragging and ostentatious clothing style. In comparison the peasant-soldiers had humbler dress and equipment, and limited experience. This is illustrated in a drawing by the German landsknecht Paul Dolnstein, who participated in King Hans' 1502 campaign in Västergötland in Sweden (Figure 27). Here a landsknecht, armed with a halberd and wearing the latest fashion, faces a Swedish soldier in loose fitting peasant clothing, an oversized

helmet, and carrying an assemblage of various weapons and equipment. The differences in equipment, experience, and attitude meant that the ways violence was used in battle, as well as the embodied experience of inflicting and receiving injuries, must have differed between these two groups. This recalls the importance of *how* an activity is performed (Migdalek, 2015). Even though both groups were warriors practicing violence and participating in warfare, their masculinities could still be different.

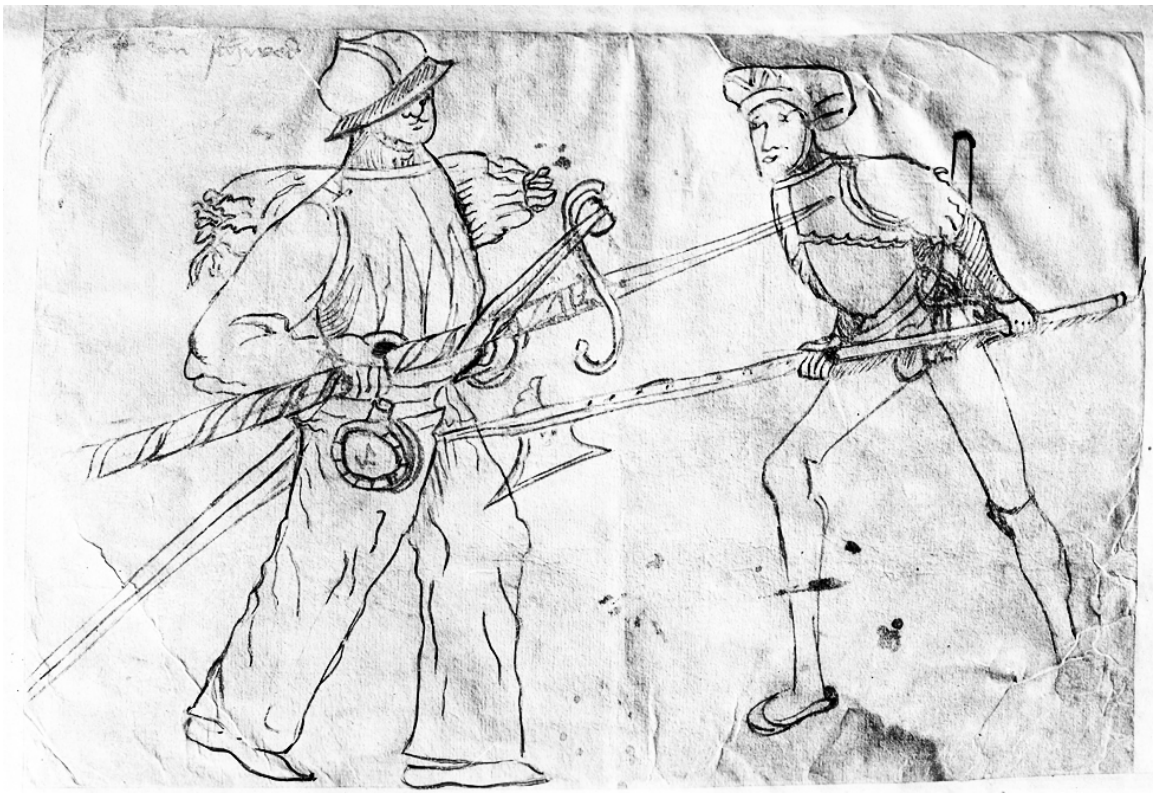

Figure 27: Differences in clothing style and equipment between Swedish soldier (left) and German landsknecht (right), drawing by Paul Dolnstein 1502

As the study in Paper III focuses on weapon-related trauma related to the performance and embodiment of warrior masculinity, the difference between professional and part-time warriors is particularly seen in the high frequency of healed injuries among males interpreted as mercenaries. Another disparity between these groups of warriors, which could potentially be examined through an analysis of human skeletal remains, is differences in diet. At least according to the stereotype, the mercenaries were more hedonistic and the peasant-soldiers were modest or even ascetic in their diet – claiming to survive on water and bark bread (Svart, 2014). An analysis of stable isotopes of carbon and nitrogen might shed light on the substance of this alleged difference, and the extent to which it was mere posing or an actual difference in dietary habits. The osteological analysis of animal bones from castles shows that meat formed an important part of the diet (for soldiers), and the composition of species also differs, with more bones from game recovered from castles, compared to urban settings or monastic communities (Vretemark, 1997). The importance of meat is also seen in the historical records from Västerås castle (Retsö, 2018) and other castles in medieval Sweden (Söderberg 2015).

Only one of the males included in the stable isotope analysis of the Västerås sample (focusing on diet in relation to sex and socioeconomic status), displayed perimortem weapon-related trauma. The isotope values of this male (E 57 I) indicate a non-local origin, and a diet dominated by terrestrial meat and vegetables, which is compatible with the expectations of a foreign mercenary. This could be compared to the mean nitrogen values in Västerås which were more enriched, indicating a diet richer in freshwater fish. No conclusions can be drawn from this single individual, but it indicates a potential method for exploring other aspects of mercenary masculinity than the use of violence, such as a non-pious or extravagant lifestyle.

There was also diversity within clerical masculinities, such as between secular and regular clergy, or depending on position and socioeconomic status. While bishops belonged to the most prominent elite families, monks often came from the aristocracy and the family background of many friars included townspeople as craftsmen or traders (Hallerdt, 2006; Menander, 2018). As the friars' burial ground was not identified in Västerås, and the number of canons buried at Skriðuklaustur was very low, the source material is too limited to study diversity among clerical masculinities. Even within a monastic community, however, diversity could be expected, for example between prominent members of the order – such as the prior – and young novices. Paper IV discusses this diversity in relation to oral health, speech impairments and public speaking. While public speaking would probably have been more important for older clerics, holding higher office, poor oral health was common among the middle-aged and elderly adults. If poor oral health affected their ability to speak clearly, it could make it harder to enact clerical masculinity by displaying eloquence and authority through public speaking. Oral health problems risking speech impairments were unusual for younger individuals. The conditions for dispensation from the requirements of an unblemished body stated that the defect should not pose a hindrance to performing service. This means that some bodily defects were more problematic than others. The applications often refer to injuries and impairments of the head and hands/fingers – body parts of particular liturgical significance, also accentuated in reliquaries and relics (Immonen and Taavitsainen, 2011; Risberg and Salonen, 2008:58). It also meant that the dispensation depended on what tasks a cleric was expected to do. Only five clerics were included in the study, and larger and more diverse samples are needed for future studies on the differences among clerical masculinities.

6.3 Transgression

Returning to masculinity as a form of practice, not everything men do can be regarded as an enactment of masculinity. Some behaviour might have little to do with gender, and other behaviours could be seen as transgressing the ideals of masculinity. Studies of medieval masculinities have noted such transgressions, such as clerics engaging in sexual activities and physical violence (Cullum, 1999; Thibodeaux, 2006). Similarly, women enacting masculinity could be seen as a gender transgression. Women could still be praised for masculine behaviour (Cadden, 1993; Clover, 1993). Becoming like a man could be seen as an improvement (Swanson, 1999). The study of human skeletal remains offers an opportunity to identify traces of actual behaviour and habits, which might sometimes be far from the ideals

of masculinity. As the standards differed in different medieval masculinities the group to which an individual belonged has to be established in order to identify which rules applied, and if there were any transgressions. This poses a particular problem for the individuals buried at the Västerås priory, however, some observations can still be made, particularly regarding common ideals applicable to men in general.

Fasting could be a way to enact clerical masculinity and show piety and self-restraint, however, as discussed in Paper I, this was not only done by clerics, but also by laity, and could be seen as a more general ideal behaviour. Some individuals do deviate from this pattern however. Their depleted nitrogen values indicate a lower consumption of fish than the rest of the sampled individuals. The isotope values could have other explanations, but even if fasting rules were not followed, this was not necessarily perceived as a transgression. There could be several legitimate reasons for not fasting. Individuals considered to need meat for their wellbeing could be exempted from the fasting rules, for example children, the elderly, pregnant women, the sick and the poor, and those performing hard manual labour (Woolgar, 2006:192). The Archbishop Olav Björnsson in Uppsala even thought that the Dominican brothers in Sweden should be excluded, as they needed hearty meals during their journeys through the country. In c. 1320 he asked the pope to relieve them from the fasting rules (Kraft, 1937; Piebenga, 1998:80). In Västerås, the individuals with the most depleted nitrogen values include both sexes, and individuals buried both inside the church and in the cemetery. They could all have individual reasons for their diet, such as health problems or a limited ability to choose their food, however, an alternative attitude towards abstinence is also possible. Diet could be a way to challenge the ascetic ideals and embrace the association between meat consumption and virility. This can be suggested for warriors, particularly mercenaries (a subgroup who allegedly relished lavish consumption), however, further studies are needed to examine this, and the observed variations could also reflect, for example, individual preferences, or differences between families or households.

It was observed in Paper II that the weapon-related trauma in Västerås followed a pattern. The sheer number of traumas together with the repeated facial injuries implies that violence was common and communally approved. It is suggested that the use of physical violence in a socially accepted manner was regarded as a legitimate way to enact masculine qualities such as strength, weapon skills and bravery, for lay men – particularly warriors. Paper III further discussed the rules for an honourable use of violence – violence which could be regarded as a performance of masculinity. One central aspect is the identity of the opponents and their ability to defend themselves. Attacks on the defenceless – such as children, women, weak men, or unprepared men (e.g. asleep), were thus not honourable or manly (Ekholst, 2014:120-122). While most of the weapon-related trauma identified in the study is found in adult males, there are also examples of female victims. The use of physical violence against women could be accepted under certain circumstances. A husband, for example, was expected to chastise his wife, and also female servants, however, this was supposed to be done with moderation, not causing bone trauma (Ekholst, 2014:103-104).

The only female victim of sharp force trauma identified (SKR 81), was buried south of the church, among the laypeople, at Skriðuklaustur. The injury affects the right side of the frontal bone, and consists of two close parallel cuts, 22 and 32 mm long, with shallow, V-shaped profiles (Figure 28). The reasons she was attacked are unknown. Male individuals with sharp force trauma have been interpreted as warriors injured/killed in battle. According to Icelandic sagas, women could arm themselves and use violence in different conflicts, even though this was mainly the domain of men. Icelandic medieval law also considered women capable of manslaughter or murder (Magnúsdóttir, 2016), however, this can be dismissed as highly unlikely in this individual example, as the female appears to have suffered from bad health at the time of the injury. The skeleton is fragmented, and the bone surface is poorly preserved, but pathological changes can be observed in various elements, including pitting at the left part of the frontal bone, superior of the left orbit, new bone formation in the nasal cavity, and a thickening of the mandibular body. The long bones, including the left humerus and radius, both ulnae, femora, and tibiae, and the right fibula, have a swollen appearance and display porosity and new bone formation at the surface, and – where the bone is fragmented – the cross section displays a thin cortex and a medullary cavity more or less filled with trabecular bone (Figure 29). The reason for directing physical violence against this female is unknown, but as she was unlikely to be able to defend herself, the violence was probably not intended as a display of masculine warrior skills.

Figure 28: SKR 81, cranium with perimortem SFT to the right side of the frontal bone

Figure 29: SKR 81, right tibia, mid diaphysis, displaying thickening, new bone formation, and post mortem damage

In Västerås, the three females with weapon-related trauma all have healed blunt force injuries to the head. It is worth noting that all three were buried in the cemetery, indicating a lower social standing. The examples are too few to draw any firm conclusions, but one possible reason could be that women of higher social standing were better protected, and less likely to be attacked. In a study of how sixteenth century noble women assessed the actions of male relatives, Lahtinen (2013) found no complaints of physical or sexual violence, but such attacks could be directed towards women of lower socioeconomic status. Lahtinen stresses

that the consequences for the attacker would be more severe if the victim was of high social standing, however, again paralleling the interpretation of males with blunt force trauma as participants in fighting, injured females were not necessarily always passive victims. Medieval women, just as medieval men, could use violence to enact power and authority, such as in chastising servants and children, and just like men they could participate in fights and kill their opponents (Ekholst, 2014:100-103). Clover (1993) recounts an example of a violent women in *Gísla saga Súrssonar*, where Auðr hits Eyjólfr as he tries to bribe her, and Clover uses this to discuss how Nordic medieval women enacted masculinity. One of the females with weapon-related trauma in Västerås, E 230, 297 II (2), could perhaps be an example of a female participating in fighting. She has a healed fracture of the fourth metacarpal of the right hand. This type of fracture could be sustained by hitting something hard with the fist (Brickley and Smith, 2006; de la Cova, 2010).

When considering that certain activities could be regarded as acceptable for some men, but transgressions for other men, the question of violence and the clergy arises. Historical accounts (e.g. Sayers, 1990; Thibodeaux, 2006) and archaeological findings (e.g. Sullivan, 2004) show that this certainly occurred. Clerics who committed acts of violence, could supplicate for absolution at the Apostolic Penitentiary. Records from the Apostolic Penitentiary demonstrate that the use of violence was often associated with consumption of alcohol (Risberg and Salonen, 2008: 143-144). A lack of self-control (perhaps due to drunkenness) could be one reason for committing acts of violence, but it has also been suggested that the lay masculinity's attitude towards violence had an impact on the behaviour of clerics (Karras, 2003:161; Thibodeaux, 2006). The above mentioned performance in battle of some Nordic bishops also exemplifies that violent clerics could be accepted in some situations (Waśko, 2018).

No evidence of clerics using violence was found in the present study. This indicates that the norm of refraining from violence had an actual impact on behaviour. One case to discuss in this context is the middle aged male in burial SKR 50, who was buried east of the church in Skriðuklaustur with the Augustinian canons. Three of his anterior teeth had been lost antemortem, possibly due to trauma, as he displays healed blunt force trauma to the mandible. While this male could have been a cleric involved in fighting, there are numerous other explanations. An accidental injury could not be completely ruled out. He may have been a passive victim of violence, or perhaps have participated in fighting before becoming a cleric (though the opposing teeth are as worn as the rest of the dentition, indicating that the teeth were lost late in life). Notably, he was most probably not a cleric after all. Other groups, including women, children and patients of the hospital, were also buried in the area, and the male SKR 50 has been interpreted as a patient, due to pathological changes in the skeleton. Exceptions where some individuals break the rules and deviate from the patterns are to be expected, however.

6.4 Changeability

According to medieval medical theory, heat versus cold and dry versus moist were qualities that had a major effect on an individual's masculinity or femininity. Males were in this respect regarded as hot and dry, while females were cold and moist (Paster, 1998). This was seen as a fundamental difference, explaining both bodily differences and differences in temperament. For example, the greater heat in men allowed them to refine blood to create semen, while women lacked this ability. The heat also caused men to produce more facial and body hair, and was the reason for their greater energy and bravery (Cadden, 1993:171; Paster, 1998, see also Jakobsson, 2007b, on the significance of the beard in an Icelandic context). There were individual differences, however, and also differences associated with the lifecycle and health. Adult, healthy men were the hottest, while children and the elderly were regarded as colder. Poor health and weakness were generally associated with femininity, and the cold complexion of women. The heat of an individual could also be changed intentionally, for example clerics who experienced excessive heat could cool down using cold baths and crying (Harvey, 2014). Diet could be used to balance the heat of an individual, based on, for example, age, sex, health, season and climate (Montanari, 2015:50-51).

The changeable nature of heat also applies to masculinity and maleness. Laqueur (1990:126-128) exemplifies the fluidity of sex with stories of women who became men in a bodily sense, due to internal heat (regarding transformation from male to female, see Paster, (1998:417-418)). While this change must have been out of the ordinary, men would have experienced changes of the body, for example due to maturing, ageing, injury, poor health, and acquiring or losing bodily skills. Considering the great importance of the body in masculinities (Coles, 2009; Shilling, 2004, 2016), it is only to be expected that with bodily changes also came changes of masculinity. These changes could be sudden, such in an accident causing a disabling injury, or gradual, such as increasing health problems due to advancing age. They could be intentional, such as acquiring skills through training, or unintentional, such as growth and maturing through childhood and adolescence. It is possible to study some of these bodily changes, and their impact on masculinity through osteological methods, and a few have been included in this research. Masculinity cannot, however, be reduced to a function of the body. A certain body does not automatically correspond to particular masculinity, and a certain change in the body does not necessarily lead to a particular change in masculinity. Changes in masculinity could have reasons and causes that are not associated with the body. It is also worth noting that intentional changes, such as becoming a member of a religious order, could lead to unintentional alterations of the body due to the new lifestyle. None of the studies in the thesis take a life-history perspective, but some observations can still be made.

Bodily changes, and their effect on masculinity, are particularly discussed in Papers III and IV, where impairments, due to battle injuries and poor oral health, respectively, are examined. According to Jónsbók, the Icelandic book of law, a wound that rendered the injured less capable than before, or was visible and could not be hidden, counted as disabling (Schulman, 2010:69). In this sense, both altered appearance and altered capacity could be disabling. This double aspect of ability/disability is discussed in Paper IV, which focuses on clerical masculinities, and the high standards of bodily purity and perfection for clerics of higher

orders. Someone ordained as priest was required to possess a complete adult male body, without any blemish (Gilchrist, 2009; Metzler, 2006). Bodily disorders, such as muteness, could cause irregularity, and disqualify someone from office. Under age or female bodies were also excluded. According to Metzler (2006:40) this rule was primarily intended to discourage impaired men from becoming clerics, not to dismiss those who lost ability later in life. Dispensations could be given by the Apostolic Penitentiary, provided the defects posed no hindrance to performing services at the altar or caused a scandal (Risberg and Salonen, 2008), however, as extensive tooth loss could cause speech impairments, age related decline in oral health could have posed practical problems for elderly clerics, limiting their abilities to enact clerical masculinity through speech. While such a situation could cause despair, it might also lead to creative new ways to compensate for the problems, and finding new ways to enact masculinity. The Icelandic bishop Þorlákur Þórhallsson (1133–1193) is an example of a cleric who was poor at public speaking, but found ways to compensate for it, and in the end became the patron saint of Iceland.

A changed appearance, due to tooth loss, could also be of importance for the ability to perform masculinity. Clerics could become irregular not only if their bodily impairments caused practical problems in performing services, but also if they caused scandal. Parlopiano (2015) stresses the importance of this second notion. If parishioners interpreted a cleric's impairment as signs of sin or divine punishment, they could lose faith in the cleric or even in the Church, and the cleric would thereby lose his ability to carry out office. Metzler has pointed out that impairments were not always interpreted in this manner, and other causes, such as accidents, were also recognised (Metzler, 2013:150). In Paper IV, it is suggested that a toothless appearance was more likely associated with ageing, poor health, and femininity. The association with femininity is suggested for two reasons, firstly due to the above mentioned medical understanding of coldness as a trait of women, the elderly, and people with poor health, and secondly because females had lost more teeth than males in Skriðuklaustur. This difference between the sexes is not only seen in Skriðuklaustur, but in many contexts, and the difference in oral health between males and females has been given both biological and cultural explanations (Lukacs, 2012, 2017). In Skriðuklaustur, the extensive tooth loss (the loss of at least eight teeth – a quarter of the dentition) was in fact only found in the older age group (over 35 years) and particularly affected females. In this age group, 13.3% of the females, and 7.4% of the males, had lost at least eight teeth.

Trauma and lost ability to perform masculinity is discussed in Paper III. Considering the ability to perform in battle as fundamental to warrior masculinity, would the loss of this ability consequently lead to changed masculinity? The literary description of the battle of Västerås (Svart, 2014) was compared to the weapon-related injuries in males buried at the Västerås priory in this case study. Among the injured, there were two individuals with cranial blade wounds in the early stages of healing, indicating that they survived their injuries for at least a few weeks. It is suggested that they could have been among the mercenaries, who allegedly fled the battle to seek absolution in the priory. Being too severely injured to perform in battle might have left them few options. Throwing away their weapons before entering the priory could be seen as a performance of changing masculine identity, however, being injured

could also be regarded as an integral part of warrior masculinity. Putting oneself at risk of being injured or killed was a way to enact bravery in a masculine manner – and bravery was an essential quality in medieval masculinities (Knüsel, 2015; Smith, 2011). Injury could mean losing the physical capital – a body fit for battle – required to perform warrior masculinity. The priory offered the hope of recovery and a return to bodily ability, ideally with impressive scars, but no reduced ability. While some died from their injuries, and others recovered to perform in battle again (seen in multiple injuries in different stages of healing), injuries could also cause permanent impairment. A Danish study (Boldsen et al., 2015) showed an increased risk of mortality among males with healed cranial trauma, compared to males without injuries. This indicates that even when injuries were not immediately lethal, they could cause permanent damage, and lead to an early death.

This leaves us with the question of whether warrior masculinity could be performed by those permanently injured or even dead – the most profound change of the body. Were there alternative ways for the injured or impaired to retain and enact warrior status, shifting from active combatant to veteran? Could even a corpse embody masculinity? Sappol (2002), Harrison (2010) and Novak (2017) have discussed the gendering of dead bodies in nineteenth century America. In the context of exhumations for anatomical studies and the taking of human remains as war trophies, the corpse was associated with feminine qualities: passivity, vulnerability and being in need of protection. In the American Civil War, the killing of an enemy could be understood as the feminisation of the living, active male body (Harrison 2010:395). In late medieval Sweden, there was also a risk that the body was desecrated after death in battle. For example, after the Battle of Good Friday 1520, the fallen men were left for a long time before being buried in unmarked graves on the battlefield (Kjellström, 2005). There are also numerous examples, as discussed by Lawing (2016), of the desecration and mutilation of corpses in Icelandic laws and sagas. As pointed out by Kress (2002:90), death is depicted as the loss of masculinity in *Hervarar saga ok Heiðreks*, when Hervör mocks her father for being dead, thereby "deconstructing his maleness" to get his sword.

Dead bodies were not necessarily perceived as feminine or passive. Mayburd (2014) describes Hervör's father, being a draugr of a dead berserker, as a liminal creature, and part of the supernatural inter-gender continuum, a "sizable 'gulf' of gender ambiguity lying between the Old Norse conceptions of masculine and feminine" (Mayburd, 2014:142). The postmortem agency of dead bodies has been discussed in various contexts (Crandall and Martin, 2014; Crossland, 2017), including the Iron Age and medieval Scandinavia (Alfsdotter, 2019; Gansum, 2008). In Icelandic sagas, some individuals, particularly the strong-minded, returned to interfere with the living as revenants, requiring preventive measures such as covering the dead body with large stones (Kanerva, 2017). Such precautions, in addition to placing the head out of reach of the corpse, can be seen in the burials of executed criminals in medieval Sweden, as the 'bad deaths' of those executed were believed to render them particularly prone to postmortem activities (Karlsson, 2008:43-45). Death in battle could also be bad or at least problematic because it came without making confession and receiving absolution, so preparations for battle commonly included these religious ceremonies (Curry and Foard, 2016).

While defeat and death in battle could be seen as a sign of divine punishment, they could also be interpreted as martyrdom in certain circumstances, such as in crusades (Spacey, 2019). In this context, the defeat is at the same time a victory. While members of knightly orders should be spiritually ready for death and martyrdom, however, not all warriors were similarly prepared. Even in crusades the importance of spiritual matters, piety and self-control could have been experienced differently by different groups of crusaders. In his study of how Old Norse sagas present crusading masculinity, Doherty (2019) stresses that in this tradition, the crusading is described as more about winning worldly honour and having something to brag about when returning home, than about penance and salvation. At the same time, there was an Old Norse tradition of regarding death in battle as a good death, and a masculine way to die (Thedéen, 2009).

Another type of change, which could be related to masculine identity, is a change of diet. A change of diet from childhood to adult life could be detected through stable isotope analysis, by comparing samples from teeth (which form at different times during childhood) and bone (which remodels throughout the life-course). As previously mentioned, in Paper I, samples were taken from bone and teeth (second molar) in sixteen males buried at the Dominican priory in Västerås. Out of these individuals, thirteen gave results from both bone and tooth, making a comparison possible. In most individuals, no major dietary changes could be detected. The most notable change was that in three males the adult nitrogen values increased by more than 1 ‰. One (A 12 I), a middle aged male, was buried in the choir of the church. His adult nitrogen value (14.8 ‰) was the most enriched in the Västerås sample. The burial location indicates a high social position, possibly as a prominent member of the Dominican order. In that case the adult diet could have been part of a monastic masculinity, where fasting and the consumption of fish was a way to display piety, asceticism and self-control. The second male, E 57 I, was around 20 years of age when he was decapitated and buried in a triple burial at the cemetery of the Västerås priory. His nitrogen values were among the most depleted in the Västerås sample (12.0 ‰ as adult). Considering his injuries and burial context he has been interpreted as an executed warrior – possibly one of the Danish soldiers defending Västerås castle during the 1521 uprising. Historical sources show that meat was an important part of the diet in castles, and it is likely that E 57 I's childhood diet was less rich in meat and dairy products if he was a commoner (Söderberg, 2015). If that is correct, the change of diet could be associated with a masculine identity as soldier stationed at a castle. The third male (A 158 I), also buried inside the church, was in between the other two (13.6 ‰), close to the mean nitrogen value of Västerås (13.1 ‰). Apart from changes of masculinity, there could be numerous interacting reasons for dietary changes, such as migration, health issues or economic reasons. In the three individuals for whom dietary changes were identified, the analysis of stable isotopes of sulphur show that A 12 I and E 57 I were not local, while A 158 possibly was. This is consistent with the suggested interpretations of a changed diet, where the move to the priory and castle in Västerås was at the same time a move to a new adult male identity, and particular way to do masculinity.

At the same time as individual men might have changed their masculinity over time, masculinities themselves are also changeable. A man might therefore change the way he performed masculinity without moving from one masculinity to another. For example, changes in the rules of the church, or the technology and tactics of warfare, altered the frameworks of how to enact clerical or warrior masculinity. There was also room for flexibility within masculinities. In the above examples, a cleric could still enact clerical masculinity when age, illness or injury caused bodily imperfections, and while an injured warrior might not be able to perform in battle, he could still perform warrior masculinity in other ways, perhaps even in death. The temporal changes of masculinities themselves are challenging to identify in the source materials, as very few graves have been dated more closely then to the period when the cemeteries were in use. Based on the few radiocarbon dates available, it could be suggested that performance in battle became a more common way to enact masculinity in Västerås by the fifteenth century, as the political conflicts led to more battles and sieges in the area, at the same time as the importance of mustered peasants in warfare increased (Neuding Skoog, 2018:407). A larger number of radiocarbon dates is required to be able to evaluate the effect that changes of the political situation had on the frequencies of weapon-related trauma among individuals buried in Västerås.

7. Conclusions

7.1 Aims and research questions

The overarching aim of the thesis was to explore bodily aspects of medieval masculinities, in a series of case studies, based on the osteological analysis of human skeletal remains from the monastic sites Skriðuklaustur in Iceland and Västerås in Sweden. While bioarchaeological methods have been noted as particularly well suited for engaging with questions regarding the embodiment of different identities (Knudson and Stojanowski, 2010), the material and methods have their limitations (see Section 4.5). They are best used in combination with other available sources, such as historical, literary and archaeological materials. This has only been possible to a limited extent within the framework of this research project. The case studies have addressed a number of questions, however, and brought new information to the field of study. Considering the importance of the body in the enactment of masculinity, and how the performance of masculinity affects the body, these results will be valuable to scholars with an interest in medieval masculinities. The research questions, and a discussion of the results, are presented below.

1. Can differences in diet between males and females, and/or between different groups of males, be detected through stable isotope analysis (based on a sample from the Dominican priory in Västetrås)?

No statistically significant difference between males of different social standing (as indicated by burial location) was identified. There was no significant difference between males and females, nor between adults and children (samples from mandibles and second molars).

Individual differences in diet were identified, as were changes in diet through the life course of some of the males.

The enriched nitrogen values found in males buried in different areas, as well as in females, indicate that fresh water fish was an important part of the diet, not only to the clergy, but also to lay men and women. This is interpreted as an effect of the religious rules on fasting. While the sample is small, enriched nitrogen values have also been observed in other medieval urban sites in Sweden, such as Linköping (Arcini et al., 2014) and Sigtuna (Kjellström et al., 2009). Food consumption is understood as a way to enact identities, including masculinity, and the results indicate that ideals of clerical masculinity – such as self-control, piety, and abstinence from overindulgence – had a strong effect on the diet of clerics and laity alike. As discussed above (Section 6.4), the dietary changes observed in some males could have been accompanied by changes in masculine identity and social situation.

2. Can different patterns of weapon-related trauma be identified in males and females, and/or different groups of males (different age, socioeconomic standing or religious status as cleric/layman?

In Skriðuklaustur, there was no significant difference between males (5.88%) and females (4.69%). It is noteworthy that no weapon-related trauma was identified among the canons or lay brothers. The three males with weapon-related trauma were all categorised as patients, however, a female and an individual of undetermined sex with weapon-related trauma belonged to the laity group. In Västerås, males (19.62%) were more affected than females (4.55%), and frequencies increased with age. Weapon-related trauma was most common among males buried in the northern aisle of the church (30.77%). As sharp force trauma was also particularly common in this group, they are interpreted as members of the lay elite, with experience in battle. Seven out of eight males in the burial number sequence E 45-57 also display weapon-related trauma, and it can be suggested that they were warriors of somewhat lower social standing, buried next to one another in the cemetery. Frequencies of weapon-related trauma among males in other burial areas in Västerås are lower (15.06%-25.00%) – but still higher than among females, and higher than among males buried in Skriðuklaustur.

The results indicate that the ideals of masculinity for different groups – with more restricted use of violence for clerics – have had an effect on actual behaviour, and on the resulting injuries. Most injuries were healed, and there appears to have been an accumulation with age. While males of high socioeconomic status are more exposed to violence than males of lower status, the opposite appears to be the case for females (although the numbers are small).

3. What type of weapon-related traumas could be identified? Are they compatible with a use of violence which could have been considered honourable and an enactment of masculinity?

Most of the weapon-related trauma identified was well healed, but there were also nine examples of perimortem trauma (one in Skriðuklaustur, eight in Västerås), and two examples

of injuries in the early stages of healing (both in Västerås). The weapon-related trauma included blunt force trauma and sharp force trauma, as well as a couple of projectile injuries. The violence was primarily directed towards the front of the cranium, with the frontal bone as the most affected element in Västerås, however, post-cranial blunt force trauma was not included in the study (see section 4.1.4). As the victims in Västerås are mainly adult males, and the location of the injuries indicates face to face encounters, the physical violence could have been used as a way to enact masculinity, however, there are also exceptions, for instance violence directed against women, and attacks from behind. The frequencies of weapon-related trauma in Skriðuklaustur were low, and there was no significant difference between males and females. The violence was directed towards the face and forehead, and the mandible was the most affected element.

A reoccurring pattern of relatively small healed blunt-force injuries to the forehead can be observed among males in Västerås. This is particularly common among males interpreted as lay elite with warrior experience. It is suggested that these injuries represent an established and probably socially accepted way to enact masculinity through physical violence, perhaps in weapons training or martial games.

4. Which oral health problems can be identified in clerics at Skriðuklaustur, and what effect could this have had on their masculinities? Who had lost teeth antemortem? Which teeth had been lost?

In Skriðuklastur, tooth loss affected 55 of 124 individuals (44.4%), and out of the 3777 observable teeth/tooth positions 321 (8.5%) had been lost antemortem. Extensive tooth loss (eight or more lost teeth) only affected middle aged and older adults, and females to a greater extent than males. Anterior teeth were often lost, with the central incisors in the maxillae being the most frequently lost teeth.

Antemortem tooth loss could lead to problems with mastication, a reduced ability to speak clearly, and altered appearance, however, the way that tooth loss is experienced is highly individual, and whether it is perceived as a problem. The loss of anterior teeth due to trauma could have connotations of aggressive and violent behaviour, and general tooth loss was more likely associated with poor health, ageing and femininity. Among the five clerics examined, one had extensive tooth loss, including both anterior and posterior teeth. While poor oral health did not conform to the high standards of the unblemished clerical body, nothing suggests it was severe enough to cause scandal or prevent clerics from performing their duties.

7.2 Concluding remarks and future research

This research project has been a tentative attempt to combine gender theory – more specifically theories on masculinity – with osteological analysis. While the case studies have had their limitations (for a discussion, see the individual papers, and Section 4.5), the results are promising, and the approach has proved to be fruitful. The materials used in the four case

studies included in the theses are limited, and the results may be confirmed or contested in future larger studies. While presenting more suggestions than final answers, they highlight the potential to use osteological materials and methods to shed light on gender in the past. When considering the body as central to the enactment and experience of gender, it makes sense to examine the remains of human bodies in a study of medieval gender relations. Osteological analysis can become a way to approach bodily aspects of medieval masculinities, although interpretations benefit from integrating other source materials. The ideal chaste, pure and unblemished clerical body could be compared to the actual bodies of five canons buried at Skriðuklaustur. Lists of foods consumed in medieval households, as well as archaeological finds, such as animal bones, could be compared to stable isotope values in the bones of sixteen males and six females buried in Västerås. Olaus Magnus' (1976) eyewitness account of how injured mercenaries arrived in Stockholm after the 1521 Battle of Västerås could be compared to the skeletal remains of two males buried in Västerås, who had severe blade wounds to the cranium, but where early signs of healing reveals that they survived for several weeks after injury. Different methods and source materials contribute from different perspectives and with different levels of detail. Osteological analysis could be a way to come close to the embodiment of medieval masculinities.

In some ways the results have met expectations and confirmed earlier knowledge on medieval masculinities. One such example is patterns of weapon-related trauma, which support the earlier observation of the different use of and exposure to violence between different groups of males, and between males and females. The study of human skeletal remains could also be used, however, to challenge current perceptions of medieval masculinities. For example, in the study of diet, the results revealed that religious dietary rules had a great effect on lay men. The Västerås material did not allow for a direct comparison between clerics and lay men. Earlier studies, based on sites with better documentation, have also found this assumed difference of diet elusive (Müldner and Richards, 2007a; Quintelier et al., 2014). Perhaps stable isotope analysis is not the best method to identify such differences, or perhaps there are no differences to detect.

Masculinities are not always the best explanation for observed differences among men. In a comparison of crude frequencies of fractures, antemortem tooth loss, caries, osteoarthritis, cribra orbitalia, sinusitis and periosteal new bone among males, there were few differences between different burial areas (Västerås) or social groups (Skriðuklaustur). Other aspects of identity such as age or socioeconomic status probably contributed more to the observed variation. For example, in Skriðuklaustur, the highest frequencies of fractures and periosteal new bone formation were found among patients – not unexpected, considering their status as patients and their general poor health. In Västerås, osteoarthritis was more common among males buried in the church, compared to the cemetery – and the proportion of middle-aged and old adults was higher in that area (see above, Table 1). The effect of such differences on the masculinity of the individuals and groups could be discussed. A more thorough investigation of a broader spectrum of health parameters might also reveal additional differences related to masculinities.

Much of the focus in these case studies has been on individuals, and the small sample sizes often prevent generalisations, however, these individuals, interpreted in the context of previous studies, present examples of how diverse and fluid masculinities could be. Differences – interpreted as differences in how masculinity was enacted – have been detected between groups (such as in the case of interpersonal physical violence) and individuals (such as in the case of diet). Masculinity as something that changes through the life course could be exemplified by individuals who demonstrate different isotope values when comparing dentine and bone samples, reflecting an altered diet. On the other hand, there could also be consistency in the enactment of masculinity, despite changing physical conditions, such as in males with multiple weapon-related injuries in different stages of healing, indicating a continued participation in violent encounters regardless of earlier injuries. Altogether, the case studies highlight that there was not a single way to enact masculinity in the medieval Nordic world, applicable to all men.

The study of medieval masculinities, using bioarchaeological methods, is still a fairly new and unexplored field of research. It has been possible to address a few issues within the scope of this thesis, but much remains to be examined in the future. This includes similar studies using larger and more varied osteological collections, representing, for example, other social groups, such as secular clergy, nuns and children. A broader range of topics, such as sexuality, family and work, could also be explored from the perspective of the body and human skeletal remains. On the other hand, in addition to broadening the materials and research questions, there is also room for more focused and detailed studies. Methods, such as the bioarchaeology of care, could be used to focus more on the lived experience and life history of individuals. In the near future, however, the first upcoming task involves public outreach and the application of the results to contemporary settings. While this thesis and the individual Papers I-IV have made the results accessible to researchers, other means of communication are required to make them available to an interested general public.

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Appendices

Catalogue 1: List of graves included in the study, Skriðuklaustur
Catalogue 2: List of graves included in the study, Västerås

List of papers

Paper I Ahlin Sundman, E. (2018) 'Medieval masculinities and diet: An analysis of skeletal material from the Dominican priory in Medieval Västerås, Sweden'. *Norwegian Archaeological Review*, 51(1–2): 95–111.

Paper II Ahlin Sundman, E. and Kjellström, A. (2020) 'Medieval Masculinities and Violence: Weapon-Related Trauma in Skeletal Assemblages from Two Religious Houses in Iceland and Sweden'. *European Journal of Archaeology*, 23(4):567-584.

Paper III Ahlin Sundman, E. (2022) 'Diverse Masculinities in Violence and Warfare: A Case Study of Individuals with Perimortem Weapon-Related Trauma Buried at a Dominican Priory in Västerås, Sweden'. *Norwegian Archaeological Review*

Paper IV Ahlin Sundman, E. and Kristjánsdóttir, S. (2021) 'Clerical Masculinity, Ability, and Appearance: A Case Study of Ante-mortem Tooth Loss in the Late Medieval Augustinian Monastery of Skriðuklaustur, Iceland'. *The Journal of Medieval Monastic Studies*, 10:157-180.

Catalogue 1: List of graves included in the study, Skriðuklaustur

Grave no	Group	Sex	Age	Coffin present	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelits	Sinusitis	Trauma	Femur sn (mm)	Femur dx (mm)
SKR 2	Patient	M	Adolescent	x	medium-good	0	0	0						OD	436	433
SKR 3	Patient	F	Adolescent	x	good	0	0	0							405	410
SKR 4	Patient	M	Middle adult	x	medium-good	0	0	1		x	x			WRT	467	469
SKR 6	Patient	F?	Middle adult		poor	13	0	1		x						
SKR 7	Patient	F	Middle adult	x	good	10	0	0		x					376	376
SKR 8	Patient	F?	Young adult	x	good	0	0	0		x					414	415
SKR 9	Patient	F?	Young adult	x	medium-good	0	0	0		x	x				418	417
SKR 10	Patient	F?	Middle adult		medium	0	0	6		x				Fr	412	406
SKR 11	Patient	F	Middle adult		poor	0	0	1								399
SKR 14	Patient	M?	Adolescent	x	good	2	0	0							(419)	
SKR 17	Patient	F	Young adult		good	0	0	0		x					427	419
SKR 23	Patient	F	Young adult		poor-medium	0	0	0			x	x			417	
SKR 26	Patient	M?	Adolescent		good	0	0	0			x				(467)	
SKR 27	Lay	F	Young adult	x	poor	0	0	0		x			x			
SKR 28	Patient	F	Young adult	x	good	0	0	0							432	432
SKR 29	Patient	F?	Middle adult		poor-medium	1	0	0		x	x	x			(390)	
SKR 30	Patient	F	Old adult		good	32	0	0		x						
SKR 31	Monastic	F	Middle adult	x	medium-good	2	0	0		x					449	444
SKR 33	Patient	F?	Old adult		good	4	0	1		x				Fr	427	421
SKR 34	Patient	M?	Adolescent	x	medium	0	0	1							485	489
SKR 36	Monastic	M?	Middle adult	x	poor-medium	13	1	0		x				OD	505	

Grave no	Group	Sex	Age	Coffin present	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelits	Sinusitis	Trauma	Femur sn (mm)	Femur dx (mm)
SKR 37	Monastic	F?	Middle adult	x	medium-good	0	0	1		x					391	395
SKR 39	Monastic	M	Old adult	x	poor	3	4	0		x						
SKR 43	Patient	M	Adolescent		medium-good	0	0	0			x			Sp	457	451
SKR 45	Patient	M?	Adolescent		medium	1	0	0			x				464	468
SKR 48	Patient	M	Old adult	x	medium-good	7	0	0		x		x	x		459	460
SKR 50	Patient	M	Middle adult		poor-medium	3	0	1		x		x		WRT		
SKR 54	Patient	M	Adolescent		good	0	0	0			x				440	437
SKR 55	Patient	M?	Middle adult		good	0	0	2		x	x			Fr	424	422
SKR 57	Patient	M	Adolescent		good	0	0	0	x					Fr	(414)	(415)
SKR 58	Patient	F?	Adolescent	x	good	0	0	0							425	424
SKR 61	Patient	F	Old adult	x	medium-good	13	1	0	x	x					408	405
SKR 63	Monastic	M?	Adolescent	x	poor-medium	0	0	0			x			Fr		
SKR 64	Patient	?	Adolescent	x	good	0	0	0			x				(355)	
SKR 65	Benefactor	F?	Young adult	x	poor	0	0	0					x			
SKR 66	Benefactor	M?	Middle adult	x	poor-medium	0	0	0			x			OD	440	441
SKR 67	Patient	F	Young adult		medium	1	0	0		x						385
SKR 69	Benefactor	M?	Young adult		poor	0	0	0			x		x			
SKR 71	Benefactor	F	Young adult	x	poor	0	0	0					x			(390)
SKR 74	Patient	F?	Middle adult		good	3	0	1		x					407	412
SKR 79	Patient	M?	Middle adult		medium	0	0	0					x			
SKR 81	Lay	F?	Middle adult		poor	0	0	0			x	x		WRT		
SKR 83	Lay	M?	Middle adult	x	medium	0	0	0		x					487	486
SKR 84	Lay	M	Young adult	x	good	0	0	1		x	x			Sp	418	416

Grave no	Group	Sex	Age	Coffin present	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelits	Sinusitis	Trauma	Femur sn (mm)	Femur dx (mm)
SKR 85	Lay	F	Old adult		poor	29	0	0		x				Fr	387	
SKR 87	Lay	F	Young adult	x	good	0	0	0	x					Fr, OD	404	404
SKR 88	Lay	M	Young adult	x	poor-medium	1	0	0							(435)	
SKR 89	Lay	M	Middle adult	x	poor	4	0	0					x		(452)	
SKR 91	Patient	M	Young adult		good	0	0	0			x				449	443
SKR 96	Lay	F	Middle adult	x	medium-good	4	0	1		x					403	404
SKR 98	Lay	M?	Middle adult		poor	0	0	0			x				452	
SKR 99	Lay	F?	Adolescent		poor	0	0	0								
SKR 100	Lay	?	Young adult		poor	0	0	0	x			x		Fr		
SKR 102	Lay	?	Adult (Young adult?)		poor	0	0	0			x	x				
SKR 106	Patient	M?	Adult		poor	0	0	0				x			(485)	
SKR 104	Lay	M?	Adult (Young adult?)		poor	2	0	1					x			
SKR 108	Lay	F	Adult (Young adult?)		poor-medium	0	0	0		x					(427)	
SKR 110	Lay	M?	Adult		poor	0	0	0							(460)	
SKR 112	Lay	M?	Middle adult		poor	16	0	0		x	x		x			
SKR 113	Patient	F	Middle adult		poor-medium	10	0	0		x				Fr		
SKR 114	Lay	M?	Old adult		poor	3	0	0		x				CF		
SKR 115	Lay	?	Middle adult		poor	0	0	0	x		x					
SKR 119	Patient	M?	Young adult		good	6	0	0		x						
SKR 121	Lay	M?	Middle adult		poor	0	0	0		x				OD		
SKR 123	Lay	?	Middle adult		poor	0	0	0								
SKR 126	Patient	F?	Middle adult		medium-good	2	0	1		x					405	404
SKR 128	Patient	F?	Old adult		medium-good	4	0	1		x				Fr	401	401

Grave no	Group	Sex	Age	Coffin present	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelits	Sinusitis	Trauma	Femur sn (mm)	Femur dx (mm)
SKR 129	Patient	M	Middle adult	x	good	1	0	4		x					424	421
SKR 130	Patient	M?	Middle adult		medium-good	0	0	0		x	x			Fr	431	
SKR 131	Patient	M	Middle adult	x	good	1	0	1							475	476
SKR 133	Patient	?	Middle adult		poor	6	0	0		x						
SKR 134	Patient	F?	Middle adult		poor	3	0	0	x	x						
SKR 135	Patient	M?	Young adult		poor	0	0	0			x					
SKR 137	Patient	F?	Middle adult	x	poor-medium	11	0	0		x	x					
SKR 138	Patient	M?	Adolescent		medium-good	0	0	0		x						404
SKR 143	Patient	F?	Middle adult		poor	4	0	0		x		x				
SKR 144	Patient	F?	Adult	x	poor-medium	0	0	0								
SKR 145	Patient	M	Old adult		good	5	0	1		x	x	x		WRT, OD	435	423
SKR 149	Patient	F	Young adult		medium	0	0	0							400	403
SKR 150	Patient	M?	Young adult		poor	0	0	0			x					
SKR 152	Patient	M	Adolescent		medium	0	0	0			x			OD	424	426
SKR 154	Patient	F?	Middle adult		poor	2	0	1		x			x			
SKR 155	Patient	M?	Middle adult	x	medium-good	8	0	1		x				Fr	463	462
SKR 167	Patient	M	Middle adult		poor	0	0	0								473
SKR 168	Monastic	F?	Middle adult	x	medium	0	0	0								
SKR 169	Patient	F	Old adult		good	3	0	0		x	x			Fr, OD	375	379
SKR 170	Patient	F?	Adolescent		medium	0	0	0	x							
SKR 172	Lay	M?	Middle adult		poor	10	0	2		x			x			
SKR 174	Patient	M	Middle adult		medium	0	0	1	x		x					

Grave no	Group	Sex	Age	Coffin present	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelits	Sinusitis	Trauma	Femur sn (mm)	Femur dx (mm)
SKR 177	Monastic	F?	Old adult	x	medium	11	0	0		x			x		409	410
SKR 179	Patient	F	Adolescent		good	0	0	0						Sp	380	380
SKR 180	Patient	F?	Adolescent		medium-good	0	0	0								
SKR 182	Monastic	M?	Middle adult	x	poor	0	0	0			x				(425)	
SKR 185	Patient	F?	Old adult		poor	5	0	0	x	x	x			Fr		
SKR 186	Monastic	M?	Middle adult	x	poor	0	0	0								
SKR 187	Patient	F?	Middle adult		poor	10	0	0			x		x	WRT		
SKR 188	Patient	F?	Young adult		poor	1	0	0								
SKR 189	Patient	?	Adolescent		poor	0	0	0			x					
SKR 191	Patient	F?	Young adult		poor	1	0	0								
SKR 192	Patient	M?	Young adult		poor	1	0	0		x						
SKR 194	Patient	F	Middle adult		medium	15	0	0		x	x			Fr	341	337
SKR 195	Patient	F	Young adult		poor	0	0	0			x					
SKR 196	Patient	F	Young adult		poor	0	0	1	x							
SKR 197	Patient	F?	Middle adult		poor	0	0	0	x		x					
SKR 201	Patient	F?	Young adult		poor	0	0	1			x					(400)
SKR 203	Patient	M?	Middle adult		poor	0	0	1								
SKR 204	Patient	M?	Adult (Middle adult?)		poor	1	0	0			x					
SKR 206	Patient	F	Old adult		poor	0	0	1		x			x			
SKR 209	Lay	M?	Old adult		medium-poor	2	0	4		x	x					431
SKR 211	Lay	?	Middle adult		poor	12	0	0								
SKR 215	Lay	?	Adolescent		poor	1	0	0						WRT		
SKR 218	Lay	?	Middle adult	x	poor	0	0	0								

Grave no	Group	Sex	Age	Coffin present	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelits	Sinusitis	Trauma	Femur sn (mm)	Femur dx (mm)
SKR 222	Patient	F	Middle adult		medium	2	0	2		x	x				407	400
SKR 223	Patient	F?	Middle adult		medium-good	1	0	1		x					392	395
SKR 224	Lay	F?	Adult (Old adult?)		poor	3	0	5	x				x			
SKR 226	Patient	M?	Middle adult		poor	0	0	0		x			x			
SKR 227	Patient	M	Middle adult	x	good	7	0	1		x	x		x		458	459
SKR 230	Lay	F	Young adult		poor-medium	0	0	0			x					399
SKR 231	Lay	?	Young adult		poor	0	0	0	x					Fr		
SKR 234	Patient	F?	Middle adult		good	2	0	2		x				Fr	382	384
SKR 235	Patient	F?	Middle adult		medium-good	0	0	0			x				417	
SKR 236	Patient	F	Middle adult		good	1	0	3		x	x	x		Sp	413	412
SKR 238	Patient	F?	Old adult	x	good	0	0	0		x			x	WRT	420	414
SKR 240	Patient	F?	Young adult		poor	0	0	0		x	x					
SKR 241	Patient	F	Old adult	x	medium	2	0	0		x					408	406
SKR 242	Lay	M?	Young adult		poor	0	0	0		x				Fr		436
SKR 280	Patient	?	Adolescent		poor-medium	0	0	0	x							475
SKR 287	Lay	?	Adult (Young adult?)		poor	0	0	0								
SKR 289	Lay	F?	Young adult		poor	0	0	0			x					

Sex: F – female, F? – probable female, ? – undetermined sex, M? – probable male, M – male

AMTL – antemortem tooth loss: Number of teeth lost antemortem

Caries: Number of teeth with carious lesions

Periapical lesion: Number of periapical lesions

Cribra orbitalia: Present or absent/not observable

OA – osteoarthritis: Present or absent/not observable
Periosteal new bone: Present or absent/not observable
Osteitis/osteomyelitis: Present or absent/not observable
Trauma: Fracture – Fr, Compression fracture – CF, Osteochondritis dissecans – OD, Spondylolysis – Sp, Weapon-related trauma – WRT
Femur: sn – sinister (left), dx – dexter (right), maximal length in mm, (approximate length in parenthesis)

Catalogue 2: List of graves included in the study, Västerås

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
A 2 I	Nave/choir	M	Middle adult	medium	0	1	0					x			468	461
A 9	Nave/choir	F	Middle adult	good	2	0	1									478
A 11, 130 II	Nave/choir	M	Middle adult	medium	0	2	0	x				x	WRT	x	468	459
A 12 I	Nave/choir	M	Middle adult	medium	0	1	0					x				
A 16 I	Nave/choir	M	Old adult	good	0	1	0		x	x						482
A 18, 29 II	Nave/choir	M	Old adult	medium-good	0	0	0						OD		473	475
A 19 I	Nave/choir	M	Middle adult	medium	1	3	0			x		x			456	455
A 21 II	Nave/choir	F?	Middle adult	good	1	0	0		x						440	439
A 23 I	Nave/choir	M	Middle adult	medium-good	0	0	0		x	x					488	489
A 24 I	Nave/choir	M?	Middle adult	good	1	0	0			x			WRT	x	466	464
A 24 I (2)	Nave/choir	M	Middle adult	good	0	0	0		x						448	445
A 26	Nave/choir	M	Middle adult	medium	3	0	0		x							
A 31 I	Nave/choir	M?	Middle adult	poor-medium	0	0	0								481	482
A 32, 48 II	Nave/choir	M?	Middle adult	medium	0	0	0								508	
A 32, 48 II (2)	Nave/choir	M	Middle adult	good	1	1	0		x						456	454
A 36 I	Nave/choir	F?	Middle adult	good	2	4	0		x			x			453	455
A 37 I	Nave/choir	M	Middle adult	good	0	0	0		x	x					490	491
A 38 I	Nave/choir	M	Middle adult	good	1	0	2								442	441
A 40 I	Nave/choir	M	Middle adult	medium-good	9	0	0						OD		480	485
A 42 II	Nave/choir	M	Middle adult	good	0	0	0								511	517
A 43 I	Nave/choir	M?	Old adult	medium-good	2	3	2		x			x	Fr		459	(456)
A 47 II	Nave/choir	M	Middle adult	medium	0	0	0		x	x					487	496

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
A 49 I	Nave/choir	M	Middle adult	medium	14	0	0	x	x	x		x	Fr, WRT	x	471	472
A 52 II	Nave/choir	M?	Middle adult	good	2	1	0						WRT	x	455	
A 53 I	Nave/choir	M	Middle adult	good	0	0	0								441	440
A 54	Nave/choir	M	Middle adult	medium-good	2	3	0	x							479	481
A 56 II	Nave/choir	M?	Middle adult	medium-good	0	0	0								437	436
A 59 II	Nave/choir	M	Old adult	medium	20	0	0		x						433	431
A 62 I	Nave/choir	M	Young adult	medium	6	0	0								503	504
A 63 I	Nave/choir	M?	Middle adult	poor	0	3	2					x			485	479
A 66 II	Nave/choir	M	Old adult	medium	0	0	4		x							473
A 67, 71 II	Nave/choir	?	Middle adult	poor	0	0	0					x			451	450
A 68 I	Nave/choir	F?	Middle adult	good	0	3	0		x			x	CF		490	492
A 72	Nave/choir	F	Adolescent	medium-good	0	0	0									(466)
A 72 I	Nave/choir	M	Middle adult	good	0	0	0			x			OD, Sp		505	495
A 74, 115 I	Nave/choir	M?	Young adult	poor	0	0	0								469	470
A 76 II	Nave/choir	M	Middle adult	good	0	0	0								458	
A 77 I	Nave/choir	M	Old adult	good	0	0	0		x				OD		488	482
A 78 I	Nave/choir	M	Middle adult	medium	0	2	1	x					WRT	x		
A 82 I	Nave/choir	M?	Old adult	poor-medium	0	2	0		x				Fr		(530)	
A 84	Nave/choir	F	Young adult	good	11	3	0					x			434	
A 89 I	Nave/choir	M	Middle adult	poor-medium	0	0	0	x		x			Fr			
A 89 I (2)	Nave/choir	M?	Middle adult	medium	1	0	0		x				Fr		476	476
A 93, A 51 II	Nave/choir	M?	Adolescent	medium	0	0	0									
A 94 I	Nave/choir	M	Young adult	good	0	0	0						Fr		489	486

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
A 96 II	Nave/choir	M	Middle adult	poor-medium	0	0	0					x			495	495
A 100 I	Nave/choir	M	Middle adult	good	0	0	0		x							
A 101 I	Nave/choir	M	Middle adult	medium-good	0	0	0			x			Fr		475	471
A 108 II	Nave/choir	M	Middle adult	medium	0	1	0		x						516	519
A 110 I	Nave/choir	M	Old adult	poor	0	0	0		x	x					479	475
A 112 II	Nave/choir	M?	Adolescent	medium-good	0	2	0					x	Sp		431	432
A 117 I	Nave/choir	F	Young adult	medium-good	0	2	0									434
A 119, 152 I	Nave/choir	F	Middle adult	medium-good	6	4	1	x	x			x			452	448
A 120 II	Nave/choir	M	Middle adult	good	0	4	0	x				x	WRT	x	466	466
A 126 I	Nave/choir	M	Middle adult	good	0	1	1		x						496	502
A 127 I	Nave/choir	F	Middle adult	good	0	0	0		x				Fr, Sp		401	406
A 129 I	Nave/choir	M	Young adult	good	0	0	0								471	476
A 132 II	Nave/choir	M	Young adult	good	0	2	1		x	x					501	490
A 136 II	Nave/choir	M	Middle adult	medium	1	1	1		x	x					490	
A 137 II	Nave/choir	M	Middle adult	medium-good	0	1	0		x			x			457	462
A 143 I	Nave/choir	M	Middle adult	good	0	0	0		x	x					466	454
A 146 I	Nave/choir	M?	Middle adult	good	0	1	0								429	
A 147 II	Nave/choir	M	Old adult	medium	2	0	0		x				Fr, WRT	x	497	494
A 148 II	Nave/choir	M	Young adult	good	0	0	0		x						504	502
A 149 I	Nave/choir	F	Middle adult	medium-good	2	10	0		x						457	466
A 151, 105	Nave/choir	M?	Adolescent	poor-medium	0	0	0								(354)	(349)
A 152 II	Nave/choir	F	Adolescent	good	0	1	0	x		x		x			436	435
A 155 I	Nave/choir	M	Middle adult	medium-good	0	0	0	x							464	461

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
A 156 I	Nave/choir	M	Middle adult	poor	2	1	1		x			x				
A 158 I	Nave/choir	M?	Middle adult	medium-good	0	0	0			x					431	431
A 159 I	Nave/choir	F	Middle adult	good	8	3	1		x				Fr		421	418
A 164 I	Nave/choir	M	Old adult	medium-good	2	3	0		x				WRT	x	458	459
A 166 I	Nave/choir	M	Middle adult	good	0	0	0		x				Fr, Sp		486	481
A 171 I	Nave/choir	M	Middle adult	good	0	0	0		x	x			Sp		436	
A 173 I	Nave/choir	M	Middle adult	good	0	1	0	x				x	WRT	x	449	452
A 176 I	Nave/choir	F?	Young adult	poor-medium	0	0	0									
A 179 I	Nave/choir	M	Middle adult	poor-good	0	1	0						Fr			
A 180 I	Nave/choir	F	Middle adult	poor	27	0	0		x			x	Fr			
A 187 a	Nave/choir	M	Middle adult	medium-good	0	0	0		x						482	482
A 189	Nave/choir	F	Middle adult	medium	0	0	0									
A 190 I	Nave/choir	M?	Middle adult	poor	0	0	0		x						492	493
A 200 a	Nave/choir	F	Middle adult	good	0	1	0		x							
A 214 I	Nave/choir	M	Middle adult	good	3	1	1		x			x	Fr		500	502
A 224 I	Nave/choir	F?	Young adult	good	0	0	0									
A 228 I	Nave/choir	M	Middle adult	good	1	0	0		x						482	489
A 250 I	Nave/choir	M	Adolescent	medium-good	0	1	1	x					WRT	x	440	443
A 251 II	Nave/choir	F?	Old adult	good	9	1	0		x				Fr, CF		423	415
A 253 I	Nave/choir	M	Middle adult	medium-good	0	0	0		x			x	Fr			
A 255 I	Nave/choir	F?	Middle adult	medium-good	7	1	0	x	x	x						
A 256 I	Nave/choir	M	Middle adult	good	0	0	0						Fr			455
A 266 I	Nave/choir	M?	Middle adult	poor-medium	0	0	0									

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
A 268 I	Nave/choir	M?	Middle adult	medium-good	0	2	0									
A III II	Nave/choir	M	Middle adult	medium-good	1	4	1		x			x	WRT	x		
B 1 II	North aisle	M?	Middle adult	medium	3	1	0		x	x					(475)	
B 3 I	North aisle	M	Middle adult	good	0	1	0								452	458
B 3 II	North aisle	M?	Middle adult	good	0	0	0	x	x	x			Fr		421	420
B 5 I	North aisle	M	Old adult	medium	10	4	3		x	x					469	469
B 6 I	North aisle	M	Young adult	good	0	0	0			x					508	511
B 7 I	North aisle	M	Middle adult	good	0	0	0			x			Fr		518	521
B 8 II	North aisle	M	Middle adult	good	4	0	0		x				WRT, CF, Sp	x		478
B 9 II	North aisle	M	Middle adult	good	2	1	0					x	WRT	x		
B 10, 11 II	North aisle	M	Middle adult	medium-good	0	0	0						Fr			
B 13 I	North aisle	M	Old adult	good	3	5	0		x				OD			474
B 15, 17 II	North aisle	M	Middle adult	poor-medium	1	0	0	x	x							
B 16 I	North aisle	M	Young adult	good	0	0	0						WRT	x	518	513
B 19 II	North aisle	M	Middle adult	good	0	1	1						WRT, Sp	x		445
B 20 I	North aisle	M	Middle adult	medium-good	0	0	0		x						467	470
B 21 II	North aisle	F	Middle adult	good	0	2	0	x							402	404
B 22 I	North aisle	M?	Adolescent	poor-medium	0	0	0								459	454
B 23 I	North aisle	F?	Adolescent	poor-medium	0	1	0					x	Fr			
B 27 II	North aisle	M?	Adolescent	medium	0	0	0						WRT	x	459	466
B 28 II	North aisle	M	Young adult	good	0	0	0			x			WRT	x	482	470
B 29 I	North aisle	M	Young adult	good	0	0	0			x					480	480

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
B 30 II	North aisle	M	Young adult	poor	0	0	0								454	452
B 32 I	North aisle	F	Middle adult	good	7	0	0	x	x	x			Fr		435	438
B 34 I	North aisle	M	Middle adult	medium-good	0	0	0								514	509
B 36 I	North aisle	F?	Middle adult	medium-good	5	2	1		x	x	x				425	426
B 39	North aisle	M?	Middle adult	good	0	0	0	x	x							
B 39 I	North aisle	M	Adolescent	good	0	0	0					x	WRT	x	(469)	(464)
B 47 I	North aisle	F?	Middle adult	good	0	0	0		x							
B 48, 49 II	North aisle	M?	Middle adult	medium-good	13	2	0		x				WRT	x		473
B 51 I	North aisle	M	Middle adult	good	0	1	0		x				WRT	x	500	501
B 52 II	North aisle	M	Middle adult	good	1	0	0		x			x	Fr		462	456
B 53 II	North aisle	M	Middle adult	medium	1	0	0		x						455	455
B 86 II	North aisle	?	Young adult	good	0	0	0			x					451	443
B 92/26 I	North aisle	M	Middle adult	good	0	0	0	x	x				Fr, WRT	x	477	
B 94 I	North aisle	M	Young adult	medium-good	0	0	0								507	504
B 102 I	North aisle	F	Middle adult	medium-good	1	0	0		x						427	426
B 106 I	North aisle	F?	Middle adult	medium-good	12	1	0		x			x				
B 107 II	North aisle	M	Middle adult	medium	1	3	0								449	455
B 108 II	North aisle	F?	Young adult	medium-good	1	0	0					x	Fr		420	424
B 121 I	North aisle	?	Middle adult	good	4	0	0						WRT	x		
B 123	North aisle	M	Middle adult	medium	2	1	0		x							
B 124	North aisle	M	Young adult	good	0	5	0	x		x		x			455	
B 147 I	North aisle	M?	Old adult	good	1	0	2		x	x			Fr, WRT	x	454	455
B 148 I	North aisle	M	Middle adult	good	0	0	0		x						470	474

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
B 154 I	North aisle	M	Middle adult	medium-good	1	1	0					x				435
B 156 I	North aisle	M?	Middle adult	medium-good	0	2	0			x			Fr		463	463
B 157 I	North aisle	M?	Middle adult	medium-good	2	0	0		x				WRT	x	432	430
B 159 I	North aisle	M	Adolescent	medium	0	0	0									461
B 160 I	North aisle	M	Young adult	good	0	0	0						OD		440	(439)
B III II	North aisle	M?	Adolescent	medium	1	0	0					x			(439)	(440)
C 10	South aisle	M?	Old adult	poor	0	1	1		x	x		x				
C 11 I	South aisle	M?	Middle adult	medium-good	0	0	0			x					498	
C 13 I	South aisle	M?	Middle adult	medium-good	0	0	0		x	x			WRT	x		483
C 17 I	South aisle	M	Old adult	good	0	0	0		x				Fr			
C 21 I	South aisle	M	Middle adult	good	0	0	0			x			Fr		459	454
C 25 II	South aisle	M?	Adolescent	good	0	0	0								468	460
C 27, 28, 30 II	South aisle	M	Middle adult	medium	0	0	0		x				Fr			
C 31 I	South aisle	M	Middle adult	medium-good	0	0	0		x	x			Fr		468	467
C 33, 34 I	South aisle	M	Young adult	medium-good	1	2	0	x	x	x					460	459
C 36, 40 II	South aisle	?	Middle adult	medium	0	0	0	x	x							
C 37 I	South aisle	F	Middle adult	medium-good	0	6	1		x	x		x			474	
C 46 I	South aisle	M	Middle adult	medium-good	0	0	0								464	
C 47 I	South aisle	M	Middle adult	good	0	0	0		x	x					440	438
C 48 I	South aisle	M	Old adult	good	0	0	0		x				Fr		465	468
C 52 I	South aisle	F	Young adult	medium	1	2	4	x	x	x						419
C 58, 68 III	South aisle	M?	Middle adult	medium-good	2	2	1					x	Fr			
C 58, 68 III (2)	South aisle	?	Middle adult	good	2	4	0									426

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
C 63 II	South aisle	M	Young adult	good	0	1	0	x					WRT	x	497	491
C 65 II	South aisle	M	Old adult	good	2	2	0						WRT	x		
C 67 II	South aisle	M	Middle adult	medium	0	1	0		x				Fr			471
C 73 I	South aisle	?	Middle adult	poor	0	2	2		x							
C 75, 76 I	South aisle	M?	Adolescent	medium	0	4	0	x		x		x			453	441
C 78 I	South aisle	M	Middle adult	good	14	0	0	x	x	x			Fr		477	479
D 1 I	Cloister	?	Middle adult	poor	0	1	0		x							
D 8, 10 I	Cloister	M?	Young adult	poor	0	0	0					x			460	455
D 9 II	Cloister	M?	Middle adult	poor-medium	1	1	0						WRT	x		456
D 39 I	Cloister	M?	Young adult	good	0	0	0						Fr			(448)
D 41 I	Cloister	F?	Adolescent	poor	0	2	2	x								
D 45 I	Cloister	M	Old adult	medium	3	5	0		x			x			456	453
E 1 I	Cemetery	M?	Middle adult	poor-medium	0	0	0		x			x	Fr		456	457
E 2 I	Cemetery	M?	Middle adult	medium-good	4	2	1		x			x	Fr		471	465
E 3 I	Cemetery	F?	Middle adult	medium	15	0	0	x	x						456	456
E 4, 236 II	Cemetery	?	Middle adult	medium	0	0	0		x				Fr		431	440
E 6 I	Cemetery	F	Young adult	good	0	0	0			x		x			410	404
E 8 I	Cemetery	M	Middle adult	medium	0	0	0	x							478	476
E 10 I	Cemetery	M	Young adult	good	0	1	0						Fr		488	481
E 11 I	Cemetery	M?	Middle adult	medium	0	0	0		x				Fr, WRT	x	423	424
E 13 II	Cemetery	M?	Middle adult	medium-good	0	3	1		x	x		x			452	455
E 14 I	Cemetery	M?	Middle adult	good	5	0	0		x			x	Fr			449
E 16 I	Cemetery	M	Middle adult	good	0	1	1		x				WRT	x	442	440

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 19 I	Cemetery	M	Middle adult	good	0	1	0	x				x			437	440
E 21 I	Cemetery	M?	Adolescent	medium	0	0	0	x								
E 27 I	Cemetery	M	Young adult	good	0	1	0	x				x	Fr		459	459
E 28 I	Cemetery	F?	Middle adult	poor	2	2	0					x			475	491
E 29	Cemetery	?	Middle adult	poor	1	1	0						OD		423	
E 30 I	Cemetery	F?	Middle adult	medium	0	0	0		x			x	Fr		460	454
E 31 I	Cemetery	M?	Young adult	poor	0	0	0					x			469	
E 32 I	Cemetery	?	Middle adult	medium	9	3	0			x						454
E 33 I	Cemetery	M	Middle adult	good	2	0	1	x				x	CF		493	492
E 35 I	Cemetery	?	Adolescent	poor	1	5	2					x			454	454
E 36, 12 I	Cemetery	M	Middle adult	poor-medium	3	2	1	x				x	Fr		500	510
E 39 I	Cemetery	F?	Middle adult	medium-good	7	12	0		x	x		x				
E 45 I	Cemetery	M	Young adult	good	1	0	0	x		x		x	Fr		483	477
E 46 I	Cemetery	M	Young adult	good	0	0	0		x	x						496
E 47 I	Cemetery	M	Middle adult	medium-good	4	3	0		x	x		x	Fr, WRT	x	440	442
E 48 I	Cemetery	M?	Middle adult	good	2	0	0	x		x			WRT, CF	x	423	423
E 49 II	Cemetery	M	Young adult	good	0	1	1		x	x			Fr, WRT	x	490	480
E 50 I	Cemetery	M	Middle adult	medium-good	1	2	0		x	x		x	WRT	x	431	429
E 52, 63 II	Cemetery	M?	Middle adult	poor	9	0	3		x			x	Fr			
E 52, 63 II (2)	Cemetery	F?	Adolescent	medium-good	0	0	0	x				x				
E 54	Cemetery	F?	Old adult	medium	24	0	1	x	x			x	Fr, CF		426	428
E 55 I	Cemetery	M	Young adult	medium-good	0	0	0	x	x				WRT	x	462	460

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 56 I	Cemetery	M	Middle adult	good	2	2	1						Fr, WRT	x	452	449
E 57 I	Cemetery	M	Adolescent	good	0	0	0						Fr, WRT	x	498	497
E 61 I	Cemetery	F	Middle adult	poor	0	1	0	x	x						416	419
E 65, 65a I	Cemetery	M	Middle adult	poor	0	0	0								460	
E 66 II	Cemetery	F	Middle adult	medium	5	2	0		x						430	430
E 68 I	Cemetery	M	Middle adult	medium-good	3	2	0			x			Fr		469	472
E 69, 70 I	Cemetery	M?	Young adult	medium	0	0	0					x				
E 71 I	Cemetery	M	Middle adult	poor-medium	2	5	0		x				Fr		493	488
E 75 I	Cemetery	M	Middle adult	medium	2	8	0		x	x			Fr, CF, WRT	x		
E 76 I	Cemetery	M	Old adult	poor	0	0	0		x	x						482
E 79	Cemetery	F	Middle adult	medium	0	2	0						Fr		390	395
E 80 I	Cemetery	F	Young adult	medium	0	0	0					x			443	445
E 81 I	Cemetery	F?	Young adult	medium-good	0	0	0	x	x						399	398
E 82 I	Cemetery	M	Adolescent	medium-good	0	1	1			x					440	
E 84 I (1)	Cemetery	M	Adolescent	medium	2	0	0	x		x			CF		447	450
E 84 I (2)	Cemetery	F?	Old adult	poor	9	0	0		x	x			Fr, CF			(418)
E 90 I	Cemetery	F?	Adolescent	poor-medium	0	1	0	x					WRT, OD	x	420	417
E 92 I	Cemetery	M?	Middle adult	medium-good	0	0	0									444
E 94 I	Cemetery	M?	Young adult	medium-good	0	0	0			x		x			499	501
E 97 I	Cemetery	M	Adolescent	poor-medium	0	2	1			x						
E 101, 176 I	Cemetery	F	Middle adult	medium	0	1	0		x						422	426

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 101, 176 II	Cemetery	M	Middle adult	medium	2	1	1						WRT	x	468	467
E 102 I	Cemetery	M	Young adult	poor-medium	3	0	0								486	
E 103 I	Cemetery	F?	Adolescent	medium-good	0	0	0	x							(429)	
E 104 I	Cemetery	M	Middle adult	good	0	0	0						Fr		456	460
E 105	Cemetery	M	Middle adult	medium	4	1	0	x	x	x					478	476
E 106 I	Cemetery	F	Middle adult	medium-good	6	5	1		x	x					414	414
E 107 I	Cemetery	M	Middle adult	poor-medium	0	0	2						WRT	x	468	462
E 109 I	Cemetery	M?	Middle adult	medium-good	0	0	0		x				Fr		453	452
E 110, 112 I	Cemetery	F?	Adolescent	good	0	3	0	x					OD		401	406
E 110, 112 II	Cemetery	M	Young adult	medium-good	0	0	0						WRT	x		
E 115 I	Cemetery	M	Young adult	good	0	0	0		x			x	CF		478	477
E 116	Cemetery	M	Young adult	good	0	0	0			x		x	Fr		462	464
E 117 I	Cemetery	M?	Middle adult	medium	0	3	1		x			x			452	449
E 118 I	Cemetery	M	Young adult	poor	1	4	0		x						461	464
E 121 I	Cemetery	M	Middle adult	medium-good	2	0	2			x					464	469
E 126 II	Cemetery	M	Adolescent	medium	1	0	1	x		x		x	Fr, WRT	x	(479)	(481)
E 130 I	Cemetery	M	Adolescent	medium	0	0	0								(470)	(470)
E 132 I	Cemetery	F	Young adult	poor	0	0	0								424	
E 140, 154 II (1)	Cemetery	M?	Middle adult	poor	0	0	0		x							
E 140, 154 II (2)	Cemetery	M?	Adolescent	poor	0	0	0			x						(497)
E 141	Cemetery	M?	Middle adult	poor	1	0	0			x		x			481	474
E 142 I	Cemetery	M	Young adult	medium	0	1	1	x	x	x			Fr		476	478
E 143 I	Cemetery	M	Middle adult	medium	0	0	0								477	473

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 144	Cemetery	M	Middle adult	medium-good	8	6	1		x			x	Fr, CF			
E 144 I	Cemetery	M	Middle adult	medium	0	2	1		x				WRT	x	459	458
E 146 I	Cemetery	M	Young adult	medium	0	0	0	x					Fr		420	415
E 147 I	Cemetery	M?	Adolescent	medium	0	1	0					x			471	475
E 148 I	Cemetery	M	Young adult	medium-good	0	0	0	x				x	Fr		438	439
E 150, 58 I	Cemetery	M	Middle adult	poor	0	0	0								505	504
E 157 II	Cemetery	M?	Adolescent	poor-medium	0	0	0	x							(462)	(464)
E 163	Cemetery	F?	Young adult	medium	0	0	0								404	402
E 164 II	Cemetery	M	Middle adult	medium-good	0	2	0			x			WRT	x	457	456
E 166 I	Cemetery	M	Middle adult	poor-medium	0	0	0		x	x			OD		444	445
E 167 I	Cemetery	M?	Middle adult	poor-medium	1	2	2		x			x			451	454
E 171 I	Cemetery	M?	Middle adult	poor	1	2	0		x	x						
E 173 I	Cemetery	M?	Adolescent	medium	0	0	0			x		x				
E 175 I	Cemetery	M	Middle adult	medium	0	0	0		x						474	469
E 176 I	Cemetery	F?	Middle adult	poor-medium	20	0	0		x	x			CF		448	446
E 177 I	Cemetery	M?	Middle adult	poor-medium	0	0	0					x	Fr		485	482
E 178, 174 II (1)	Cemetery	M	Middle adult	poor-medium	0	0	0		x	x			Fr		457	451
E 178, 174 II (2)	Cemetery	M	Young adult	medium-good	0	0	0								465	461
E 182 I	Cemetery	M	Adolescent	good	0	5	0	x		x						
E 186 I	Cemetery	M?	Adolescent	medium	0	0	0			x					466	459
E 188 I	Cemetery	M	Middle adult	medium	0	1	1			x	x	x	Fr		504	494
E 189	Cemetery	M	Adolescent	poor-medium	0	4	0								491	492
E 192, 202 II	Cemetery	?	Young adult	good	0	0	0			x					425	427

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 195	Cemetery	M?	Middle adult	medium-good	1	2	0		x	x	x	x			463	461
E 198 II	Cemetery	M	Adolescent	medium-good	0	0	0			x					465	471
E 199 I	Cemetery	M	Adolescent	medium-good	1	1	0			x		x			472	465
E 200 I	Cemetery	M?	Middle adult	medium-good	0	1	0	x	x		x		Fr, WRT	x	518	518
E 201 II	Cemetery	M?	Young adult	medium	0	2	1	x		x			Fr, WRT	x	515	525
E 203 II	Cemetery	M	Adolescent	medium-good	0	0	0									
E 207, 280 II	Cemetery	M	Adolescent	medium-good	0	0	0								(460)	
E 207, 280 II (2)	Cemetery	M?	Adolescent	medium	0	0	0			x	x				490	486
E 210, 211 II	Cemetery	M?	Young adult	good	2	3	0								483	476
E 214 I	Cemetery	M	Young adult	medium	0	2	1			x		x			490	482
E 215 I	Cemetery	M?	Young adult	poor	0	5	1		x	x						
E 215, 216 I	Cemetery	?	Middle adult	medium	2	2	0		x				Fr			
E 218 I	Cemetery	F?	Young adult	poor-medium	0	3	0		x						417	406
E 222 I	Cemetery	M?	Adolescent	medium-good	1	0	0			x					512	511
E 230, 297 II	Cemetery	M?	Adolescent	medium-good	0	2	0									452
E 230, 297 II (2)	Cemetery	F?	Middle adult	medium	0	0	0	x				x	Fr, WRT	x	429	425
E 232 I	Cemetery	M	Young adult	medium-good	0	0	0						WRT	x	456	452
E 234 I	Cemetery	M	Middle adult	good	0	0	1		x	x			Fr		483	479
E 235 I	Cemetery	M	Young adult	medium	0	0	0			x		x	Fr		455	455
E 237 I	Cemetery	?	Adolescent	poor-medium	0	0	0		x			x			458	454
E 240 I	Cemetery	M	Adolescent	poor-medium	0	0	0						Fr		450	447
E 243 I	Cemetery	?	Adolescent	poor	0	0	0		x			x			501	493
E 250 I	Cemetery	M	Young adult	good	0	0	0		x	x		x			460	457

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 256	Cemetery	M	Young adult	medium	2	3	0			x			Sp		454	445
E 257 I	Cemetery	F?	Middle adult	poor-medium	2	1	1		x							
E 260	Cemetery	F?	Middle adult	poor	0	0	0	x				x			435	449
E 262 I	Cemetery	M?	Adolescent	poor-medium	0	1	0			x	x		OD			467
E 263, 264 II (1)	Cemetery	F	Young adult	poor-medium	0	0	0		x	x					384	380
E 263, 264 II (2)	Cemetery	F?	Adolescent	poor-medium	0	0	0		x	x						(422)
E 269 II	Cemetery	M	Young adult	good	1	0	0	x		x		x			460	455
E 270 I	Cemetery	M	Middle adult	poor-medium	2	2	0		x			x	Fr		444	440
E 271 I	Cemetery	F	Middle adult	medium	17	0	1		x			x	WRT	x	412	405
E 274	Cemetery	?	Young adult	medium	0	0	0	x								
E 282 II	Cemetery	M	Middle adult	medium-good	10	0	0	x		x		x			441	435
E 289	Cemetery	M?	Middle adult	medium	3	2	1		x						437	428
E 289 I	Cemetery	M	Middle adult	medium-good	0	0	0			x			Fr, Sp		492	489
E 291 I	Cemetery	M	Middle adult	medium	6	3	1		x	x					443	443
E 294, 296 I	Cemetery	M	Young adult	good	0	0	0						Fr		463	461
E 294, 296 II	Cemetery	M	Young adult	good	0	0	0								483	480
E 295 II	Cemetery	M	Middle adult	medium-good	5	0	0	x	x						441	438
E 297 I	Cemetery	M?	Young adult	poor-medium	0	1	0					x	Fr		(452)	(452)
E 304 I	Cemetery	M	Young adult	medium-good	0	0	0	x							446	444
E 309 I	Cemetery	M	Young adult	poor-medium	2	2	0		x	x			Fr		515	506
E 310 I	Cemetery	M	Middle adult	poor	2	1	4		x			x			(475)	
E 311 II	Cemetery	M	Middle adult	medium	19	0	0		x	x			Fr		490	
E 313, 267 II	Cemetery	F?	Middle adult	medium	0	1	0			x		x	Fr		425	

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 315, 316 II	Cemetery	M?	Adolescent	medium	1	0	0									
E 317 I	Cemetery	F	Middle adult	medium-good	0	0	0			x					414	410
E 319 I	Cemetery	M?	Middle adult	poor-medium	0	1	0			x					408	411
E 320 I	Cemetery	M	Middle adult	good	0	8	0		x				Fr		472	468
E 323 I	Cemetery	M	Middle adult	poor-medium	0	1	0		x				Fr, Sp		500	
E 326 I	Cemetery	F	Middle adult	medium	1	0	0		x			x			432	430
E 326 II	Cemetery	M?	Young adult	good	0	0	0								414	411
E 337	Cemetery	M	Middle adult	medium-good	2	0	0		x	x			Fr		475	471
E 339 I	Cemetery	M?	Adolescent	medium-good	0	0	0	x		x		x	Sp		(402)	(399)
E 340, 334 II	Cemetery	M?	Adolescent	poor-medium	0	0	0			x		x				
E 341 I	Cemetery	M?	Middle adult	poor	1	2	0						WRT	x	498	487
E 342 II	Cemetery	F?	Adolescent	poor-medium	2	0	0	x		x		x			392	
E 346 I	Cemetery	M?	Old adult	medium-good	3	2	0		x			x	Fr, WRT	x	470	
E 347 I	Cemetery	M	Middle adult	medium	0	0	0			x			Fr, Sp		499	502
E 351 I	Cemetery	F?	Young adult	medium-good	2	1	0		x						414	407
E 352 I	Cemetery	M	Young adult	good	0	0	0		x	x					458	452
E 358 I	Cemetery	F	Middle adult	medium-good	0	0	0		x						411	409
E 359, 242 II	Cemetery	F?	Adolescent	medium	0	0	0						Sp		418	418
E 363 I	Cemetery	M	Middle adult	medium-good	0	0	0			x			Fr			495
E 367 I	Cemetery	M	Middle adult	medium	0	0	0								453	448
E 368 I	Cemetery	F	Middle adult	medium	0	2	1	x	x						421	423
E 369 I	Cemetery	M	Middle adult	medium	11	6	0		x			x	Fr, WRT	x	(445)	
E 370 I	Cemetery	M	Middle adult	medium	0	0	1						WRT	x	443	438

Grave no	Group	Sex	Age	Preservation	AMTL	Caries	Periapical lesion	Cribra orbitalia	OA	Periosteal new bone	Osteitis/osteomyelitis	Sinusitis	Trauma	WRT	Femur sn (mm)	Femur dx (mm)
E 371 I	Cemetery	M	Adolescent	good	0	2	0					x	WRT	x	442	443
Unnumbered	Unknown	M?	Adolescent	poor-medium	3	3	0		x	x					453	449

Sex: F – female, F? – probable female, ? – undetermined sex, M? – probable male, M – male
AMTL – antemortem tooth loss: Number of teeth lost antemortem
Caries: Number of teeth with carious lesions
Periapical lesion: Number of periapical lesions
Cribra orbitalia: Present or absent/not observable
OA – osteoarthritis: Present or absent/not observable
Periosteal new bone: Present or absent/not observable
Osteitis/osteomyelitis: Present or absent/not observable
Trauma: Fracture – Fr, Compression fracture – CF, Osteochondritis dissecans – OD, Spondylolysis – Sp, Weapon-related trauma – WRT
Femur: sn – sinister (left), dx – dexter (right), maximal length in mm, (approximate length in parenthesis)