Biological Population Distances in the European Mesolithic: An Analysis of Dental Metrics in the Burial Populations of Five Regions

by

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A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of Manitoba in partial fulfillment of the requirement of the degree

of

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ABSTRACT

Dental metric data from two sites and three site complexes in Europe have been analysed for differences in the human skeletal populations. The sites are located in Portugal, France, Denmark and Sweden, Germany and Russia. Radiocarbon analysis and associated artifacts indicate that the sites fall into the Mesolithic cultural period, which dates roughly from 10, 000 B.P. to 5, 500 B.P. in Europe. Odontometrics have been shown in previous studies to be useful in analysing the genetic relationships between populations (Kieser 1990; Manzi et al. 1997; Coppa et al. 1995; Garn et al. 1967). Meiklejohn et al. (n.d.) analysed craniometric data from the sites, and concluded that the inhabitants of the Russian site had different origins than the other populations. Using analysis of variance tests and a discriminant analysis with canonical variables, the dental data reflected a separation between the site of Oleni ostrov in Russia, and the four other site complexes. This separation is interpreted as resulting from primarily genetic differences between the populations which used the Mesolithic cemeteries. The results of the study are limited by the varying sample sizes between sites, and by the fragmentary nature of many of the samples, which limited the ability to determine the sex of many individuals. The dental analysis provides an indication of the usefulness of dental data for examining population differences where cranial data are fragmentary or absent.

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1.0 INTRODUCTION

1.1 *Objectives*

Human teeth are the most durable parts of the human skeleton, and are therefore often better preserved than bone (Hillson 1996:3). The statement can therefore be made that the farther back in geological time an individual lived then the greater the chances that the sole surviving biological proof of that existence will be his/her teeth. Researchers studying the diet, health, or way of life of an ancient population may find themselves having to rely heavily or solely on dental remains. Luckily, human teeth can be an excellent source of information regarding an individual's diet, exposure to disease, environmental stresses, and/or way of life. Additionally, as will be discussed in further detail in Chapter 2, human teeth are generally accepted as useful indicators of genetic variation and population affinities. As a result, the usefulness of ancient human dentition in archaeological, cultural and biological studies cannot be ignored. For these reasons, an analysis of human dental metrics from five ancient European populations has been conducted and is presented here.

Dental metric data from two sites and three site complexes in Europe will be analysed for differences in the human skeletal populations. Radiocarbon analysis and associated artifacts from the sites indicate that they all fall into the Mesolithic cultural period. The sites are located in the Muge River region of Portugal, northwestern France (Brittany), southern Germany (Bavaria), Denmark and Sweden, and Karelian Russia.

The first known cemeteries in Europe are mainly a late Mesolithic occurrence, with a mean age of c. 6, 250 BP (Mithen 1994:120-121), though one cemetery - Oleni ostrov in

Russia - is dated to c. 6,100 to 7,750 BP (Jacobs 1995: 368). The two largest known Mesolithic cemeteries are included in the present analysis: the site of Oleni ostrov in Karelian Russia, and Cabeço da Arruda in Portugal, both with over 170 individuals (Mithen 1994:120-121). Other burials included in the analysis are: Téviec and Höedic in France; Moita do Sebastião, Portugal; Skateholm, located in Sweden; Ofnet, located in southern Germany; and Vedbæk-Bøgebakken, Gøngehusvej 7, and Strøby Egede, located in Denmark.

Jacobs (1992) conducted a study of dental metrics from Oleni ostrov and Skateholm to test the hypothesis that the population that inhabited Karelian Russia during the Mesolithic had different origins from other northern European Mesolithic populations. Based on a comparison of the Skateholm sample to the European Mesolithic skeletal sample in general (from Frayer 1978), Jacobs states that tooth size in the Skateholm sample is representative of European Mesolithic populations in general (1992:36-40). Jacobs' statement that Skateholm is representative of Europe in general is problematic in that it does not allow for regional variation between western and eastern Europe. However, this was the basis for his comparison between Skateholm and Oleni ostrov.

Jacobs used t-tests to compare means and separated his samples by gender, and maxilla/mandible (Jacobs 1992:37-39). In the maxillae, statistically significant differences in size (the Russian sample being almost always smaller) were found in several teeth, although these were not always in both the mesiodistal (crown length) and buccolingual (crown width) measurements. In 27 of the 32 measurements, Oleni ostrov teeth were smaller, and 14 of these differences were statistically significant. In the mandible, 29 of 32 measurements from Oleni ostrov were smaller, and 19 of these were statistically significant ($p < 0.05$) (Jacobs 1992: 35-38). Jacobs concludes that the odontometric differences represent a founder effect, evidence that separate populations recolonized northern Europe after glaciation, indicating that the population which reinhabited Karelian Russia was separate from those that repopulated the rest of northern Europe (Jacobs 1992:44-45).

Meiklejohn et al. (n.d.) analysed craniometric data from the five site complexes included in this analysis and also suggest that the human groups that occupied Karelian Russia had different origins than those of the other site complexes. The hypothesis that remains to be tested is whether the dental data for the five regions will reveal the same differences. Jacobs' dental analysis used one sample to represent all of northwestern Europe (Skateholm). The addition of other European samples may provide more evidence for Jacobs' hypothesis that the population in Karelian Russia had different origins, or it may reveal that Oleni ostrov fits within the range of dental variation for Europe in general.

The objective of the proposed research is to determine if the dental data will mirror the craniometrics, and to determine whether this type of analysis can be used alone in cases where cranial data are sparse or absent. Along with these objectives, other questions will be asked: is there evidence, based on dental metrics, that some of the populations which used the Mesolithic cemeteries were more closely related than others? Are dental data useful for analysing between population genetic differences?

1.2 *Contributions*

The results of the research will be useful for both physical anthropologists and archaeologists working on population transitions and demographic shifts. Skeletal populations may not be well-preserved in an archaeological context, and teeth are often the most abundant and well-preserved remains of past populations (Coppa et al 1998:371-372; Buikstra and Ubelaker 1994:47; Kieser 1990:1). The analysis of dentition allows the researcher to maximize sample size for two reasons. Firstly, because teeth are normally more well-preserved than osseous material (Coppa et al 1998:371-372), and secondly, because once the permanent dentition has erupted, there are no further developmental changes in tooth size, allowing us to include sub-adults who have their permanent teeth (Kieser 1990:1-2). This analysis will provide a good indication of the usefulness of dental data for examining population differences in the absence of cranial data.

2.0 LITERATURE REVIEW

2.1 *The Heritability of Dental Size*

The issue of the heritability of dental metric traits has been a topic of discussion since the late nineteenth century (Kieser 1990:15-19). The degree of heritability of anthropometrics is still under discussion (Petersen 1997:34), but tooth size has been shown, in varying degrees, to be genetically determined (Kieser 1990:15-23; Buikstra and Ubelaker 1994:61; Friedlaender 1975:188). It has been established that tooth size is a polygenic trait, meaning that rather than the determinants of tooth size being inherited by alleles at a single locus (such as the ABO blood group), which is called Mendelian (or unifactorial) inheritance, tooth size appears to be polygenic (multifactorial). This means that alleles at several loci are responsible for variations in tooth size. In other words, a number of genes act together with the environment to create an individual's phenotype (Kieser 1990:19-20). It is often difficult to separate the effects of genes on a trait from the effects of the environment. A broad range in tooth size and shape can therefore exist between individuals who are genetically related. Tooth size does appear to be useful in distinguishing between population groups, but the degree of genetic influence in ratio to environmental influences is difficult to determine (Kieser 1990:15-19).

In dental studies the term "environment" includes several factors, such as the prenatal and postnatal environments and conditions, diet, disease, and anything that developmentally affects an individual before the permanent teeth are fully formed. Perzigian (1977) cites several animal and human dental studies that indicate that the prenatal environment has the greatest effect on the development of teeth.

Sexual dimorphism appears to have an effect on tooth size. Hillson (1996) states that sexual dimorphism in modern humans is approximately 10 percent, while gorillas have 95 percent dimorphism (which means that males are almost twice the size of females) (1996:80). Sexual dimorphism in humans is variable in the permanent dentition, varies by specific population, and centres on the canines (1996:81). Actual size differences between males and females is very small (0.4 - 0.5 mm), and measurement error can therefore have an effect on these differences (1996:82).

Many researchers agree that humans have undergone a reduction in dental size since the Late Pleistocene (Frayer 1977, 1978; Kieser 1990; Larsen 1997; Smith 1982). The cause of this reduction is a matter for debate, and it is not clear whether it is primarily a result of environmental and/or genetic changes. Smith (1982:370) states that the overall trend in dental reduction among hominids appears to be associated with jaw size reduction, increased body size, increased cranial capacity, changes in the diet, behavioural changes, and technological developments. Smith conducted a study on Australian sites containing human remains dating from 30,000 b.p. to the present, to determine what forces could be found to affect tooth size. Smith (1982:274) hypothesizes that after Australia was first inhabited "selective forces favoured the maintenance of robust skeletal characteristics and large teeth". Smith (1982:375) discovered that tooth size appears to be smaller in some desert tribes, and that this could be attributed to the type of diet; in other words, selection would favour smaller teeth in a population that relied heavily on cereals and seeds.

Smith (1982:375) goes on to state that differences in tooth size over the continent could be attributed to "long term localized adaptations". Smith does not address the issue of the possibility of genetic drift as a factor in tooth size differences between different areas. Mange and Mange (1990:448) define genetic drift as the "unrepresentative sampling that occurs in successive generations of a population". Changes in allele frequencies which cause genetic drift increase as the size of the population decreases (Mange and Mange 1990:429). It is possible that the original population that occupied Australia carried specific genes that became more common because that population was now separate from the larger group of which it had been a part. The smaller the founder population, the greater the chance that genetic drift will have an effect on the occurrence of certain traits, raising the possibility that smaller tooth size in the original Australian population was caused by drift, not adaptation. If genetic drift has not had any effect on tooth size over time, the question that remains to be addressed is whether tooth size has a positive adaptive effect, and whether it is possible to separate adaptive differences from environmental differences.

Osborne (1967) argues against the statement that tooth size is adaptive and affects reproductive success. From the time that hominids developed tool use and adopted an omnivorous diet, the importance of dental structures probably decreased (Osborne 1967:946). Mastication is probably not a factor in selection, particularly since extensive dental wear and attrition occurs in some individuals before reproductive age is reached. Osborne (1967:946) states "the fissure and cusp pattern of the molars are obliterated and the cutting edge of the incisors removed before reproductive life, with nothing to suggest a reduction in either survival or reproductive performance of the individuals so affected". Osborne goes on to state that genetic drift probably has a significant effect on variation in humans, even though its significance in evolution appears to be minimal (1967:946).

Several researchers have attempted to determine the extent to which dental size is genetically determined by studying tooth size differences in twins or in families (Alvesalo and Tigerstedt 1974; Dempsey et al. 1995; Goose 1967, 1971; Mizoguchi 1977; Pelsmaekers 1997; Potter et al. 1968, 1983). Others have looked at specific populations, past or present, to answer this question (Anderson et al. 1977; Brabant 1971; Coppa et al. 1995; Falk and Corruccini 1982; Frayer 1977; Friedlaender 1975; Garn et al. 1967; Hinton et al. 1980; Lavelle 1977; McCrossin 1992; Passarello 1980; Smith 1982; Snyder et al. 1969).

Perhaps the most insightful answers to the question of the heritability of tooth size comes from family studies, and twin studies in particular. Monozygotic twins have identical genetic makeup, and ideally all differences in tooth size (or any other trait) within sets of twins would be a result of environmental differences. Since most identical twins share the same environment, a comparison between monozygous twins and dizygous twins is also useful, because dizygous twins have a different genotype but similar environments. Osborne et al. (1958) and Lundstrom (1963) found that dizygous, or fraternal, twins have more variance in diameters of tooth crowns than identical twins, indicating that genetics are important in tooth size.

Dempsey et al. (1995) conducted a study on 298 pairs of twins (149 monozygous and 149 dizygous pairs) to determine the contributions of both genetic and environmental influences to dental size. The authors (1995:1389) discovered that genes and the environment have an additive effect on tooth size, and the "estimated heritability of the incisor mesiodistal dimensions varied from 0.81 to 0.91" . Overall, the estimates of heritability averaged 86 percent (Dempsey et al. 1995:1397). Despite the significance of these results, human heritability estimates have an important limitation.

> "...Any estimate of heritability applies *only* to a particular population in a particular set of environmental conditions and may not hold in other situations or other times" (Mange and Mange 1990:461).

> "Heritability is not defined for an individual...Rather, heritability is a measure of the genetic variability of persons within a population, valid only at the time of measurement. In groups with relatively homogeneous environments,...the heritability of a trait will naturally tend to be larger than for groups in a heterogeneous environment" (Mange and Mange 1990:473).

The above mentioned studies have demonstrated in varying degrees that tooth size is determined by genetic factors, and the dentition of an individual is, by the time the growth of the permanent dentition is complete, also affected by the environment. The exact extent to which one factor has more or less of an effect than another is unknown, but these studies do support the validity of the current analysis, in that it is useful to attempt to determine population affinities through an analysis of odontometrics.

2.2 *Dental Measurements*

The data that will be used in this analysis are two measurements taken from each tooth of each individual. These measurements are the mesiodistal (MD), or crown length, and the buccolingual (BL), or crown width (Buikstra and Ubelaker 1994:61). The mesial is the anterior part of any tooth, and distal is the opposite of mesial, or the posterior part of a tooth (White 1991:30). Buccal is the side of the tooth that is next to the cheek, while lingual is the side that is nearest the tongue (Buikstra and Ubelaker 1994:61-62). The MD measurement of a molar tooth measures the longest part of the tooth, front to back, in the plane of the row of teeth. The BL measures the widest part of the molar perpendicular to the MD plane, from the cheek to the midline (Hillson 1996:70-71). The usefulness of these measurements is summed up by Kieser, who states "these two measurements provide significant information on such human biological problems as the genetic relationship between populations and human environmental adaptations" (1990:1). For the sake of simplicity, the following abbreviations are used throughout the text (starting from midline):

first incisor =	I1
second incisor =	I2
canine =	C
first premolar =	P1
second premolar =	P2
first molar =	M1
second molar =	M2
third molar =	M3

Several researchers have used MD and BL to test hypotheses regarding population affinities and the relationships between human groups. For example, in a study to test the effectiveness of cranial versus dental measurements for separating human populations, Falk and Corruccini (1982:123-127) found that cranial measurements were more useful. The authors found statistically significant results ($p< 0.05$) in some dental measurements, particularly in the MDBL of P1 (Falk and Corruccini 1982:125). Manzi et al. (1997) conducted an analysis of differences in dental size and shape between two Roman Imperial populations. They found statistically significant differences ($p < 0.01$) in the MD-BL of the two populations for the maxillary P1 and mandibular I1, I2, C, and P1 (Manzi et al. 1997:472). Friedlaender (1975) conducted an analysis of tooth size (using MD and BL) among several Bougainville Islander villages to test the hypothesis that a north-south gradient existed in tooth size. Friedlaender (1975:190) discovered that northern villages had smaller teeth in general. Using analysis of variance, Friedlaender also tested the variance within and between villages and found that there is significantly more variation between villages than within villages for males, with the exception of the MD diameter for the maxillary canine and P2. The highest F-ratio in females was the mandibular MD diameter of P2 (Friedlaender 1975:193-194). A discriminant analysis also separated the northern villages from the southern villages, with males showing more discriminatory power (Friedlaender 1975:196). Based on the above, evidence from the literature seems to suggest that odontometrics are useful for testing within and between population differences.

3.0 BACKGROUND OF ARCHAEOLOGICAL SITES

3.1 *The Late Upper Palaeolithic*

The glacial maximum occurred in Europe between 25, 000 and 15, 000 BP. Soffer (1987:333) states that it occurred between 20, 000 and 18, 000 BP, Mellars (1994:67) dates it to between 25, 000 and 15, 000 BP, and Eriksen (1996:79) dates it to approximately 18, 000 BP. Much of northern Europe was covered by ice at 18, 000 BP, including most of the British Isles (with the exception of southern England), northern Scandinavia, the northern and eastern parts of Denmark, northern Germany, most of Poland and the Czech Republic, Lithuania, Latvia, and Estonia, and Russia north of Moscow, including Lakes Ladoga and Onega, and the White Sea. Glaciers were present in the Pyrenees as well (Mellars 1994:43), though this mountain chain had narrow corridors connecting southwestern France to Spain (Jochim 1987:325). As well, much of the Alps were covered by glaciers, including southeastern France, northern Italy, Switzerland, and part of Austria. The British Isles were joined by land to northern Germany and Denmark as a result of the lowered sea levels (Straus 1996:87). Sea levels were at their lowest during the glacial maximum (Soffer 1987:333), and resulted in the expansion of coastal plains in Europe by between 20 and 50 kilometres beyond their present limits. The lowering of sea levels was more pronounced in northern Europe (Mellars 1994:45).

Much of Europe was tundra and loess-steppe and the fauna included herds of mammoth and possibly woolly rhinoceros. In more southern latitudes, reindeer and horse

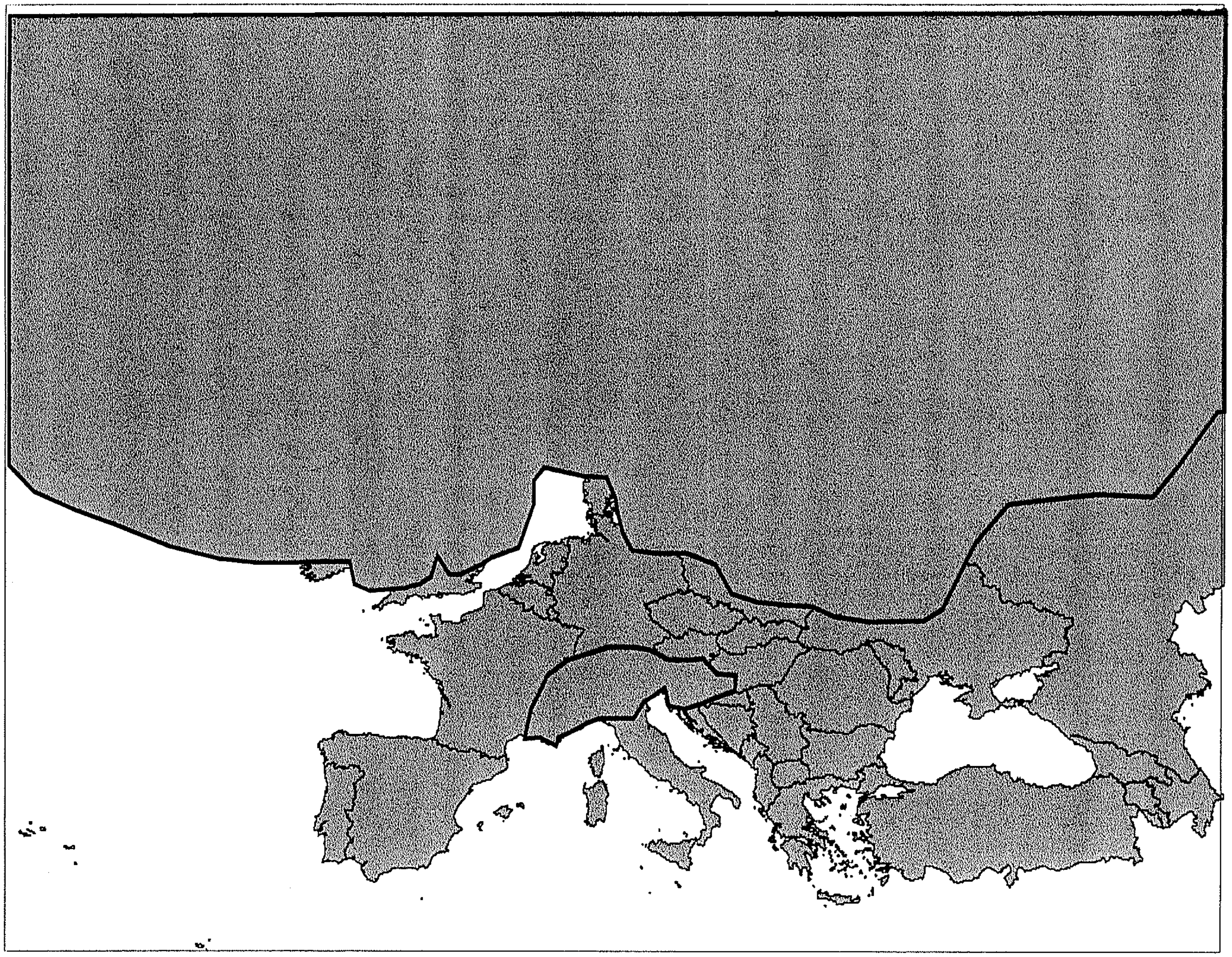


Figure 1. Glacial coverage in Europe between 20,000 and 18,000 B.P. (adapted from Jochim 1987, Mellars 1994 and Phillips 1980).

were important for subsistence (Jochim 1987:327). During glacial maximum, there was generally less variety in the big game exploited by humans (Jochim 1987:325-327). Mellars (1994:44) notes that the tundra and steppe environment may have been advantageous to human groups. Tundra and steppe environments are rich in grasses, mosses and other herbaceous plants, and could have supported large herds of reindeer, wild horse, steppe bison, mammoth and woolly rhinoceros that may have had migratory patterns exploitable by humans (see Burch 1972 for a discussion of the human exploitation of reindeer). Mellars (1994:76) states that the steppe regions of southern Europe had the highest concentrations of animals during the glacial period.

> "Forested habitats can support only 20-30 percent of the total biomass of animal populations which can be maintained in open environments... and the kinds of animals encountered in forested environments tend to be much less migratory in their seasonal habits, and to be distributed in smaller, more widely dispersed groups" (Mellars 1994:76).

Human population density during the glacial period is thought by some to have been at a minimum (Eriksen 1996:79; Meiklejohn 1978:71-73). Other researchers have argued that the more favourable parts of Europe were refugia of sorts, into which animal and human populations were concentrated (such as southwestern France, Cantabria, the Austrian plains, the Czech Republic, and southern Russia). Overall population density in Europe may have been low, but actual density in refugia areas may have been quite high. These regions may have had human population densities similar to some areas at the beginning of agriculture in the Neolithic (Mellars 1994:44, 74; Hayden et al. 1987:280, 289). While the issue of population density is not directly related to the current study, it does establish that much remains unknown about population demography and human migration patterns following the last glacial maximum in Europe.

It is generally accepted that populations in Portugal, Spain and parts of France were separated from those in Yugoslavia, Romania, and eastern Europe during glacial maximum. An ice free corridor existed north of the Alpine glacier, and south of the major ice sheet. This ice free corridor roughly followed the valley of the Danube (Straus 1996:87). Champion et al. (1984:11) state that "the only line of easy communication in an east-west direction through the hill and mountain country of central Europe was offered by the valley of the Danube." The evidence supports the theory that there was little or no travel or contact through this valley at glacial maximum (Mellars 1994:72; Straus 1995:9).

As the glaciers retreated, the area from the British Isles to eastern Russia was reinhabited by hunter-gatherer groups migrating from southwestern or southeastern Europe. The migrations may have increased at approximately 12, 000 BP with the regeneration of the central European forest. Straus (1996:85) states that temperature and humidity increased significantly at approximately 13, 000 BP, and there is evidence for substantial reforestation in south central Portugal by 14, 000 BP, replacing the steppe environment. Evidence also suggests that there was a significant increase in forests in Spain and southern France (1996:85). Humans repopulated northern Europe as the glaciers retreated, moving into northern Ireland, Scotland, the Baltic and Scandinavia. While it has been stated that human groups cannot effectively "follow" herds of reindeer (see Burch 1972), it is argued by others that humans moved into Scandinavia at least partially as a result of following herds of reindeer which were moving north as temperatures increased in southern Europe and glaciers retreated (Champion et al. 1984:90). Whatever the reason, humans gradually reoccupied land formerly covered by glaciers.

The argument that humans migrated north to exploit newly available territories and resources, particularly migratory herd animals, should be given weight because it would perhaps mean that hunting strategies would not have to be changed immediately (Mellars 1994:76). There is also evidence that those groups that did not migrate north instead modified their hunting strategies to adapt to a forested environment. In a short period of time in southwestern France (c. 12, 500 BP) it appears that reliance on reindeer for subsistence changed to a reliance on red deer, wild boar, and wild oxen (Mellars 1994:76-78).

Straus argues (1996:83-99) that post-glacial change in the Iberian Peninsula was gradual, and can be characterized by continuity, while north of the Pyrenees, change was more abrupt between 13, 000 and 8, 000 BP. Woodman (1985:325-339), on the other hand, argues that the early Mesolithic was not a period of rapid transition north of the Pyrenees. Woodman (1985:326) questions the theory that humans were dependent almost entirely on reindeer herds in northwestern Europe. He states that while reindeer kill sites are impressive, they exist in isolation. It is therefore difficult to determine if other food sources were exploited.

The extent of human occupation in northern Europe during the post-glacial period is fairly well-established. Sea levels were much lower during and following the retreat of the glaciers, and increases in sea level since that time have destroyed many early post-glacial sites, particularly along the North Sea (Mithen 1994:81-82). As a result, it is difficult to establish with any certainty the dates of human movement northward and the extent of reliance on coastal resources (Champion et al. 1984:99). By the beginning of the Mesolithic, it appears that humans occupied most of Europe.

The question of the origin of the human groups migrating into northern Europe and other areas formerly occupied by glaciers remains to be answered. As mentioned above, contact or movement between southwestern and southeastern Europe does not appear to have taken place along the ice free corridor during glacial maximum. Evidence exists for continuity between Greece (Franchthi Cave), and sites in former Yugoslavia, such as Vlasac, along the Danube (Price 1983:763), suggesting that contact was maintained in southern Europe. The upper Danube also appears to have been continuously occupied since at least 10, 000 BP, as evidenced by the Jagerhaus-Hohle site in the Swabian Alb (Price 1983:766). Sites in northern Germany, Jutland and Holland appear to contain artifact similarities and date to roughly 12, 000 to 10, 000 BP. The relationship between these sites is difficult to determine (Larsson 1990:269-271). It appears that geographical and environmental data will aid in answering these questions.

The geographical characteristics of Europe provide clues about the patterns of human settlement and migration. The Alpine glacier served to separate human populations in France and the Iberian Peninsula from groups east of the glacier during the last glacial maximum. While the Alps are not impassable, they are an important limiting characteristic in European geography (Champion et al. 1984:9). Perhaps the more significant characteristic is the extent of plains and lowlands in the north which extend from the Atlantic coast of western France, through southeastern England, southern Scandinavia, northern Germany and Poland to Russia (Champion et al. 1984:9). This area was extended in the Early Mesolithic because of the lowered sea levels, and it is possible that this would have facilitated human migration northward and eastward. The plains were affected by the glaciers, resulting in "poor drainage, lakes and broad tracts of infertile heath lands" along much of the northern lowlands (Champion et al. 1984:9), and may not have been attractive to human groups.

3.2 *Mesolithic Environment and Geography*

The Mesolithic period dates from 10, 000 to 8, 500 BP in southeastern Europe and from 10,000 to 5, 500 BP in northwestern Europe. The term Mesolithic is used to describe human societies at the beginning of the Holocene geologic period after the close of the Pleistocene (Straus 1996:85). It is characterized by the spread of hunter-gatherer groups into northern Europe and the increasing complexity of these groups in technological, subsistence and social terms (Soffer 1987:344; Price 1987:225-226). While ritual burials took place during the Upper Palaeolithic (and possibly the Middle Palaeolithic), the late Upper Palaeolithic and Mesolithic may be the first cultural periods to demonstrate evidence for the use of cemeteries (Mithen 1994:120-121; but see Meiklejohn and Brinch Petersen n.d. and Schulting n.d. on the use of the term "cemeteries"). Agriculture appears in southeastern Europe at approximately 8, 500 BP, and in the northwest after 5, 500 BP, signifying the end of the Mesolithic and the beginning of the Neolithic Period (Price 1987:230).

3.3 *Mesolithic Burials*

3.31 <u>Moita do Sebastião and Cabeço da Arruda, Portugal</u>

These two sites are located in south-central Portugal eighty kilometres northeast of Lisbon, on the Muge River, four kilometres from where it meets the Tagus River (Ferembach 1980:329). When in use, the two sites were located on the banks of tributaries of the Tagus estuary (Lubell et al. 1994:203). Both are shell midden sites and show evidence for exploitation of marine and terrestrial food sources, and appear to have been occupied year-round for approximately 400 to 500 years (Lubell et al. 1994:206-207). Frayer (1978:44) states that the total number of burials from these two sites is over 250 individuals, but these are very fragmentary, and the dentition of every skeleton is not available for analysis.

Five dates on human bone at Moita do Sebastião situate the burials in the Mesolithic between 6810 ± 70 and 7240 ± 70 b.p. (Lubell et al. 1994:203). Thirty adult skeletons were recovered from 26 graves in a cluster, and eight sub adults were recovered from a second grave cluster (Frayer 1978:44-45). Ferembach (1980) states that Moita do Sebastião contained 136 skeletons, but because of poor preservation, only 28 were included in her analysis. This site was excavated in 1863, 1880, 1884-1885, and from 1952-1954 (Ferembach 1980:329). Newell et al. report that 40 to 44 skeletons were recovered during the 1952-1954 excavations (1979:150-151). The earlier excavations yielded approximately 100 individuals that probably also fall into the same period (Meiklejohn 1998).

Cabeço da Arruda dates to between 6360 ± 80 and 6990 ± 110 b.p. (Lubell et al.

1994:203). Cabeço da Arruda was excavated in 1865, 1880, 1892, 1937, and 1964 to 1965. Approximately 178 skeletons were recovered during these excavations. However, to date, not all of the skeletal material has been analysed (Newell et al. 1979:148-149).

3.32 *Höedic and Téviec, France*

Höedic and Téviec are shell midden sites located in north-western France (Brittany) on separate islands approximately 20 km apart. Both sites were excavated in the early 1930s (Schulting 1996:335). At the time of their use, these two sites were part of the coastal plain, and would have been connected to the mainland because of the lowered sea levels. Schulting (1996:346) states that individuals at both sites show evidence of complex status roles, distinct from age and sex categories or roles.

Radiocarbon dates from Höedic place the site at roughly 5755 ± 55 b.p. to 6645 ± 60 b.p. (Meiklejohn 2002; Schulting 1999:203). Höedic was excavated in 1931 and 1934 (Meiklejohn 2002) and contained 14 skeletons in nine graves. The bodies had been placed in bedrock depressions. Skeletons that were not disturbed after their interment were placed with their legs tightly flexed, and some of the legs may have been bound (Schulting 1996:338). Red ochre was fairly common, but more variable than at Téviec (Schulting 1996:341).

Téviec was excavated between 1930 and 1932 (Meiklejohn 2002) and contained 23 skeletons in 10 graves. This site dates to 5680 ± 50 to 6740 ± 60 b.p. (Meiklejohn 2002; Schulting 1999:203). Several of the graves were associated with stone structures. Most of the graves were covered by slabs of stone, upon which fire had been made. Schulting has interpreted these as ritual funerary behaviour (1996:338). Many of the skeletons at Téviec were found with red ochre on their chests, and all of the skeletons had tightly flexed lower legs (Schulting 1996:340).

3.33 *Ofnet, Germany*

Ofnet, located in Bavaria, was excavated between 1907 and 1912 by Schmidt (Frayer 1978:45; Newell et al. 1979:153), and is described as a "skull nest" site. Skull nest sites occur in the Early Mesolithic and are defined as single or multiple ceremonial burials of individuals who were decapitated. The only remains found are the skulls and occasionally cervical vertebrae with cut marks. The skulls are usually found in trenches or pits (Frayer 1978:46). Other skull nest sites from the Early Mesolithic include Kaufertsberg and Hohlenstein, Germany (Frayer 1978:43).

It is not clear if the Ofnet skull nests can be defined as cemeteries. Ofnet is a cave site with two skull nests; the first contained 27 skulls, and the second contained six. The pits also contain cervical vertebrae, and fragments of burned human bone. The skulls, arranged in semi circles, were associated with red ochre, and all faced west towards the cave entrance (Schulting n.d.:3).

Much debate has taken place over the age of the Ofnet skull nests. Early collagen dates placed it in the Late Palaeolithic (Frayer 1978:46; Newell et al. 1979:156-157), but recent dates confirm a Mesolithic classification. Radiocarbon dates place the Ofnet skulls between 7360 ± 80 and 7720 ± 80 b.p. (Meiklejohn 2002; Orschiedt, J. 1998).

3.34 *Skateholm, Sweden*

Excavation of the Skateholm sites began in 1980, and evidence was found of three distinct cemeteries. One of the cemeteries had been destroyed in the 1930s by a gravel pit.

The cemeteries are located on the Baltic coast, in an area near a former lagoon (Larsson 1989:212-213).

Skateholm I contained 63 skeletons and seven dogs in 64 graves. The cemetery dates from c. 5980 ± 125 to 6340 ± 95 b.p., placing the site in the Late Mesolithic (Larsson 1989:214). The individuals were placed on their backs, or in crouching and sitting positions, with considerable variation in these positions. The cemetery contained one cremation and two inhumations, and is associated with a settlement area (Larsson 1989:214-215).

Skateholm II is located 200 metres from Skateholm I, and is also associated with a settlement area. The site dates from 6140 ± 180 to 6480 ± 140 b.p. Larsson (1989:215-216) hypothesizes that the cemetery and settlement area at Skateholm II represent an earlier occupation than Skateholm I, and had been located closer to sea level. The rising sea level may have caused Skateholm II to be abandoned for a site situated on higher land (Skateholm I). Skateholm II contained 22 skeletons and two dogs in 22 graves. The majority of the individuals were placed on their backs or in sitting positions, and none were found in a crouched position (Larsson 1989:216).

3.35 *Vedbæk-Bøgebakken, Denmark*

A total of 41 Mesolithic sites have been discovered in and around the town of Vedbæk, Denmark. Skeletal material from the sites of Vedbæk-Boldbaner, Henriksholm-Bøgebakken, and Gøngehusvej 7 will be included in the analysis. Other sites, such as Maglemosegaard and Maglemosegaard Vaenge have yielded isolated human bone but are not included.

Henriksholm-Bøgebakken was excavated in 1975 and is located approximately 80 kilometres from Skateholm across the Baltic. This site contained 22 human skeletons in 17 graves, and dates from c. 6330 ± 90 to 6860 ± 105 b.p. (Albrethsen and Brinch Petersen 1976:5-6; Larsson 1989:213-214). The site was excavated in 1924, 1937, 1939, and 1975. The cemetery itself was not discovered until 1975 (Albrethsen and Brinch Petersen 1976:4-5). Bøgebakken is almost contemporaneous with Skateholm I, and is associated with a settlement area. There is evidence for a greater reliance on marine fishing in Bøgebakken. Larsson (1989:214) states that the environments of both sites are similar. All but one adult had been placed on their backs (supine). A comparison of grave goods between Skateholm I and Bøgebakken reveal many differences, but Larsson (1989:215) hypothesizes that the populations that used the two sites had a similar material culture, with some differences in burial customs and in burial goods.

Vedbæk-Boldbaner dates to c. 6,500 B.P., and consists of a single male burial excavated in 1944-1945 (Albrethsen and Brinch Petersen 1976:2-4; Frayer 1978:47). This burial is usually described in association with Bøgebakken as the same site (see Schulting n.d.:5; Meiklejohn 1998). Vedbæk appears to have been an occupational site, and faunal evidence suggests a reliance on terrestrial and marine mammals, and various species of birds and fish (Albrethsen and Brinch Petersen 1976:2).

Gøngehusvej 7 is located within the town of Vedbæk, and contained approximately 10 individuals (Schulting n.d.:5). The site, excavated between 1987 and 1990 (Meiklejohn 2002), contained four or five burial features which consisted of cremations. A double inhumation was excavated which yielded the skeletons of an adult and a child (Brinch

Petersen et al. 1993:68-69). The single adult from this site is included in the present analysis.

3.36 *Strøby Egede, Denmark*

Strøby Egede is located 75 kilometres south of Vedbaek, and contained eight individuals (Schulting n.d.:5). The site was excavated in 1986, and consists of a single multiple grave. The skeletons were associated with red ochre and other grave goods (Meiklejohn 2002). Radiocarbon dates for Strøby Egede are not available.

3.37 *Oleni Ostrov, Russia*

Oleni ostrov or Oleneostrovski mogilnik (Deer Island cemetery) is located on Deer Island, in northeastern Lake Onega, Karelia, Russia (Jacobs 1995:361-362). Oleni ostrov was excavated in 1936 and 1938 under salvage-like conditions, and 177 individuals were recovered (Jacobs 1995:363-365). Jacobs (1995) conducted an analysis of the human remains in Leningrad and was able to locate 146 of the 177 individuals originally excavated. Oleni ostrov is the oldest of the known Mesolithic cemeteries in the peri-Baltic (Jacobs 1995:360), and dates to 6100 ± 90 to 7750 ± 110 b.p. (Meiklejohn 2002).

Dental metric data collected by Dr. A.M. Haeussler will be used in this analysis. In 1991, Dr. Haeussler analysed skeletal remains from Oleni ostrov located at the Museum of Anthropology in St. Petersburg, and was able to locate 37 individuals whose dental preservation was adequate enough to include here (Haeussler, personal communication).

Prior to excavation, Deer Island had a long history of sand and gravel quarrying and it is estimated that a large part of the cemetery had been destroyed by these activities. The cemetery may have originally contained approximately 500 individuals (Jacobs

1995:362, 365). The long axis of the burials runs roughly in an east-west direction. 118 of the individuals were buried on their backs, 11 on their sides, five in a flexed position, and four in vertical burials (Jacobs 1995:365-366). The site is not associated with any known occupational or settlement area (1995:367).

A summary table (Table 1) for the sites is included below.

Table 1. Site Summary Table

Site Name	Overall Date	Total N	N in Analysis	Source of Data
Moita do Sebastião	c. 7240 - 6360 b.p.	136 (Ferembach 1980:329)	Total for Portuguese sites = 169	unpublished data collected by Dr. Christopher Meiklejohn, University of Winnipeg.
Cabeço da Arruda	c. 7240 - 6360 b.p.	178 (Newell et al. 1979:148-149), though not all have been analysed.	Total for Portuguese sites = 169	unpublished data collected by Dr. Christopher Meiklejohn, University of Winnipeg.
Höedic	c. 6645 - 5755 b.p.	14 (Meiklejohn 2002)	Total for French sites = 16	data published by Frayer, 1978
Téviec	c. 6740 - 5680 b.p.	23 (Meiklejohn 2002)	Total for French sites = 16	data published by Frayer, 1978
Ofnet	c. 7360 - 7720 b.p.	33 (Schulting n.d.:3)	24	data published by Frayer, 1978
Skateholm	c. 6480 - 5980 b.p.	Skateholm I - 63 (Larsson 1989:214) Skateholm II - 22 (Larsson 1989:216)	Total for all Swedish/Danish sites = 44	unpublished data collected by Dr. Verner Alexandersen, University of Copenhagen.
Henriksholm-Bøgebakken	c. 6860 - 6330 b.p.	22 (Albrethsen and Brinch Petersen 1976:5-6)	Total for all Swedish/Danish sites = 44	unpublished data collected by Dr. Verner Alexandersen, University of Copenhagen

Site Name	Overall Date	Total N	N in Analysis	Source of Data
Vedbæk-Boldbaner	c. 6860 - 6330 b.p.	1 (Albrethsen and Brinch Petersen 1976:2-4)	Total for all Swedish/Danish sites = 44	unpublished data collected by Dr. Verner Alexandersen, University of Copenhagen
Gøngehusvej 7	c. 6860 - 6330 b.p.	approximately 10 (Schulting n.d.:5)	Total for all Swedish/Danish sites = 44	unpublished data collected by Dr. Verner Alexandersen, University of Copenhagen
Strøby Egede		8 (Schulting n.d.:5)	Total for all Swedish/Danish sites = 44	unpublished data collected by Dr. Verner Alexandersen, University of Copenhagen
Oleni ostrov	c. 7750 - 6100 b.p.	177 originally excavated in 1936-38 [however only 146 were located by Jacobs (1995:363-365)]	37	unpublished data collected by Dr. A.M. Haeussler, Arizona State University.

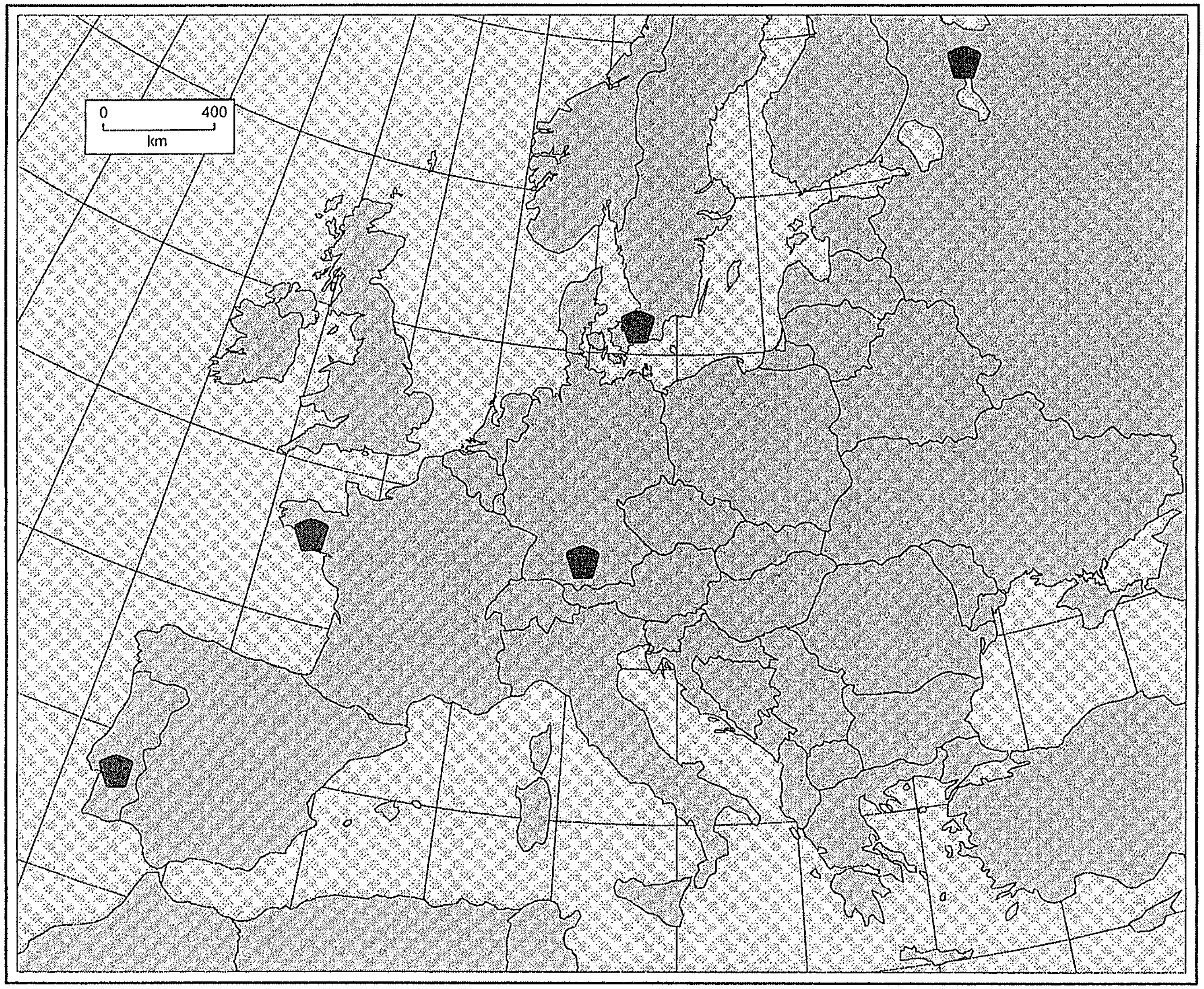


Figure 2. Location of archaeological sites included in the analysis (courtesy of Meiklejohn et al. n.d.).

3.38 ***Summary of Sites***

Skateholm and the Vedbæk sites are both characterized by Mithen (1994:121) as representing more sedentary populations. Moita do Sebastião appears to represent a more mobile population, while Höedic and Téviec differ from many other Mesolithic cemeteries because of the elaborate child burials, and the large number of multiple burials (Mithen 1994:125). While Höedic and Téviec appear to represent a population with complex social organization (Mithen 1994:125), Oleni ostrov demonstrates the "most complex social organization currently known from the Mesolithic" (Mithen 1994:125), and there is strong evidence for hereditary social positions and ranking (Mithen 1994:125-126; O'Shea and Zvelebil 1984:35; but see Jacobs 1995 for an alternate view).

Albrethsen and Petersen (1976:25-26) state that Vedbæk has similar characteristics to sites in Germany and Poland, and to Téviec and Höedic, and while some similarities are seen with Moita do Sebastião, these may be due to similar natural environments. They also emphasize that Vedbæk appears to be quite different from Ofnet, which is closer geographically than the sites in Brittany and Portugal.

4.0 ANALYSIS

4.1 *Description of Data*

Several problems can arise in an analysis of an historical skeletal population using dental metrics. The data are not necessarily chosen by the researcher, ie, the researcher does not have the option of pre-determining the sample size or selecting random cases for analysis. Several questions are therefore difficult to answer: is the burial population representative of the once-living population? How will fluctuating sample sizes between the groups affect the results? What are the consequences of missing teeth on the results?

All of the analyses conducted use data from the right side of all the samples, because in some cases the left side was only measured when the right side was missing, with the result that the left side sample sizes are smaller for some of the groups. Data testing and ANOVA were conducted on two variables (BL and MD) for five tooth categories and two quadrants (right mandible and right maxilla): the first and second premolars (P1 and P2), and the first, second and third molars (M1, M2 and M3). The incisors and canines were excluded because they were more likely to be missing, and because the assumption was made that the larger teeth would suffer from less measurement error (which could potentially be exacerbated by the fact that different researchers contributed the raw data).

As outlined in the site descriptions, some of the sample sizes are quite small (less than 20), and in many cases the sexes of the skeletons could not be determined because of poor preservation. A t-test to analyse differences between males and females was conducted. Males and females were compared to each other for each measurement from each tooth category for the right side quadrants (see Appendix A). Less than half of the categories showed significant differences between the sexes at the $p > 0.05$ level. While these results are not meant to be conclusive, they are an indication that sex differences can and do exist, to some extent. The sample sizes for the male/female t-tests are problematic because in many cases less than 10 measurements were being compared. This makes it more difficult to state that there are or are not significant differences between males/females in the cases with low sample sizes. The results are further complicated because unknowns could not be included in the T-tests. Based on these factors and despite the existence of some significant differences, males, females and unknowns have been combined in order to maximize sample sizes for the analysis of variance (ANOVA) and multivariate analysis.

The first step of the analysis was to test the data to determine if it met the assumptions of a normal distribution and a homogeneous variance.

4.11 Normal Distribution

In order to conduct most statistical tests on continuous measurements the data must follow a normal distribution, characterized by a symmetric, bell- shaped curve (Hassard 1991:14-15). Three tests were used to determine if the data met these assumptions: a skewness test for symmetric distribution, the Kolmogorov-Smirnov test for normality, and the Shapiro-Wilk test for normality.

Each of the five tooth categories for each country from each quadrant were analysed. A total of 300 tests were conducted (see Appendix B), of which 39 did not meet one or more of the assumptions. 261 met the assumption of a normal and symmetric distribution. A summary of the results is included in Appendix B.

4.12 Homogeneity of Variance

In order to conduct further metric tests, each group should be equally variable (the spread of the groups should be equal) (Hassard 1991:84; SPSS Base 8.0 Guide 1998:238). The Levene test for the homogeneity of variances was used because it is fairly robust if the data have departures from normality (SPSS Base 10.0 1999:58).

A total of 20 Levene's tests were conducted for each tooth category in each quadrant and three were found to have unequal variances between the groups (P2 of Right MDMD, M3 of Right MXBL, and M3 of Right MXMD) (see Appendix C).

4.2 ***Statistical Analysis***

Prior to the multivariate analysis, an analysis of variance (ANOVA) was conducted. The purpose of the ANOVA tests is to obtain an idea of the results which might be expected in the multivariate analysis.

4.21 Analysis of Variance (ANOVA)

An analysis of variance analyzes the differences between more than two groups (5 in this study), in order to determine if the variation between the groups is a result of natural or random variation, or is a result of actual differences between the groups (Hassard 1991:76-77). In other words, the results can tell us whether any differences between the mean tooth sizes of the five countries are real or random.

The ANOVA conducted here is a univariate test, which means that it does not look at multiple factors to explain significant differences (at the $p < 0.05$ level). In this case, 20 ANOVA tests were conducted on the dental measurements for the five countries.

The ANOVA showed significant differences between the groups for P2 ($p < 0.001$), M1 ($p < 0.003$), M2 ($p < 0.022$), and M3 ($p < 0.049$) of Right MDBL (see Tables 3, 4, 5, and 6), M1 ($p < 0.000$), M2 ($p < 0.001$), and M3 ($p < 0.013$) of Right MXBL (see Tables 14, 15, 16), and M1 ($p < 0.006$), and M2 ($p < 0.002$) of Right MXMD (see Tables 19 and 20).

Table 2. ANOVA results for Right MDBL - P1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.51	4	0.377	1.425	0.23
Within Groups	29.664	112	.265		
Total	31.173	116			

Table 3. ANOVA results for Right MDBL - P2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.992	4	1.248	4.775	.001
Within Groups	30.578	117	.261		
Total	35.570	121			

Table 4. ANOVA results for Right MDBL - M1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.817	4	1.704	4.166	.003
Within Groups	58.914	144	.409		
Total	65.731	148			

Table 5. ANOVA results for Right MDBL - M2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.775	4	1.194	2.962	.022
Within Groups	54.801	136	.403		
Total	59.576	140			

Table 6. ANOVA results for Right MDBL - M3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.730	4	1.432	2.472	.049
Within Groups	56.786	98	.579		
Total	62.515	102			

Table 7. ANOVA results for Right MDMD - P1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.753	4	.438	2.346	.059
Within Groups	21.674	116	.187		
Total	23.427	120			

Table 8. ANOVA results for Right MDMD - P2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.747	4	.437	1.691	.156
Within Groups	30.728	119	.258		
Total	32.475	123			

Table 9. ANOVA results for Right MDMD - M1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.471	4	.618	1.491	.208
Within Groups	62.574	151	.414		
Total	65.046	155			

Table 10. ANOVA results for Right MDMD - M2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.288	4	.572	1.218	.306
Within Groups	64.354	137	.470		
Total	66.642	141			

Table 11. ANOVA results for Right MDMD - M3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.651	4	.913	1.692	.158
Within Groups	52.870	98	.539		
Total	56.522	102			

Table 12. ANOVA results for Right MXBL - P1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.990	4	.248	.829	.510
Within Groups	25.973	87	.299		
Total	26.963	91			

Table 13. ANOVA results for Right MXBL - P2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.661	4	.665	2.108	.086
Within Groups	29.991	95	.316		
Total	32.652	99			

Table 14. ANOVA results for Right MXBL - M1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14.198	4	3.550	11.387	.000
Within Groups	36.161	116	.312		
Total	50.359	120			

Table 15. ANOVA results for Right MXBL - M2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.257	4	2.314	5.061	.001
Within Groups	50.757	111	.457		
Total	60.013	115			

Table 16. ANOVA results for Right MXBL - M3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.655	4	3.414	3.373	.013
Within Groups	85.023	84	1.012		
Total	98.678	88			

Table 17. ANOVA results for Right MXMD - P1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.767	4	.442	2.387	.057
Within Groups	16.289	88	.185		
Total	18.056	92			

Table 18. ANOVA results for Right MXMD - P2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.119	4	.280	.781	.540
Within Groups	35.093	98	.358		
Total	36.212	102			

Table 19. ANOVA results for Right MXMD - M1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.287	4	1.572	3.830	.006
Within Groups	49.648	121	.410		
Total	55.935	125			

Table 20. ANOVA results for Right MXMD - M2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.211	4	2.053	4.396	.002
Within Groups	56.507	121	.467		
Total	64.718	125			

Table 21. ANOVA results for Right MXMD - M3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	535.123	4	133.781	2.023	.098
Within Groups	6019.233	91	66.145		
Total	6554.356	95			

4.22 Bonferroni Tests

An ANOVA does not reveal which of the five groups demonstrated significant differences between the means. For example, these results indicate that there is a significant difference between the means of the tooth sizes of the five countries for P2 of Right MDBL. Does this mean that all five countries are significantly different from one another? Not necessarily. In order to determine if this is the case, the Bonferroni's test was used to determine which means differed significantly where the ANOVA results were significant (at the $p < 0.05$ level). The Bonferroni test results are included here (Tables 22-29). It should be noted that a Bonferroni Test is only conducted when the ANOVA is significant.

Table 22. Bonferroni test for Right MDBL - P2

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) COUNTRY	(J) COUNTRY				Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.4432	.1766	.134	-.9484	6.206E-02
	FRANCE	-.7739*	.1840	.001	-1.3004	-.2474
	GERMANY	-.2739	.1840	1.000	-.8004	.2526
	PORTUGAL	-.2722	.1341	.446	-.6558	.1114
DEN/SWEDEN	RUSSIA	.4432	.1766	.134	-6.2065E-02	.9484
	FRANCE	-.3308	.1937	.904	-.8850	.2235
	GERMANY	.1692	.1937	1.000	-.3850	.7235
	PORTUGAL	.1710	.1471	1.000	-.2499	.5919
FRANCE	RUSSIA	.7739*	.1840	.001	.2474	1.3004
	DEN/SWEDEN	.3308	.1937	.904	-.2235	.8850
	GERMANY	.5000	.2005	.140	-7.3732E-02	1.0737
	PORTUGAL	.5017*	.1559	.017	5.554E-02	.9479
GERMANY	RUSSIA	.2739	.1840	1.000	-.2526	.8004
	DEN/SWEDEN	-.1692	.1937	1.000	-.7235	.3850
	FRANCE	-.5000	.2005	.140	-1.0737	7.373E-02
	PORTUGAL	1.737E-03	.1559	1.000	-.4445	.4479
PORTUGAL	RUSSIA	.2722	.1341	.446	-.1114	.6558
	DEN/SWEDEN	-.1710	.1471	1.000	-.5919	.2499
	FRANCE	-.5017*	.1559	.017	-.9479	-5.5537E-02
	GERMANY	-1.7370E-03	.1559	1.000	-.4479	.4445

* The mean difference is significant at the .05 level.

Table 23. Bonferroni test for Right MDBL - M1.

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) COUNTRY	(J) COUNTRY				Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.5364	.2384	.260	-1.2160	.1432
	FRANCE	-1.0078*	.2561	.001	-1.7378	-.2778
	GERMANY	-.7308*	.2443	.033	-1.4272	-3.4458E-02
	PORTUGAL	-.5731*	.1966	.041	-1.1335	-1.2649E-02
DEN/SWEDEN	RUSSIA	.5364	.2384	.260	-.1432	1.2160
	FRANCE	-.4714	.2328	.447	-1.1351	.1924
	GERMANY	-.1944	.2198	1.000	-.8210	.4321
	PORTUGAL	-3.6667E-02	.1652	1.000	-.5075	.4342
FRANCE	RUSSIA	1.0078*	.2561	.001	.2778	1.7378
	DEN/SWEDEN	.4714	.2328	.447	-.1924	1.1351
	GERMANY	.2769	.2388	1.000	-.4040	.9578
	PORTUGAL	.4347	.1898	.234	-.1064	.9758
GERMANY	RUSSIA	.7308*	.2443	.033	3.446E-02	1.4272
	DEN/SWEDEN	.1944	.2198	1.000	-.4321	.8210
	FRANCE	-.2769	.2388	1.000	-.9578	.4040
	PORTUGAL	.1578	.1735	1.000	-.3370	.6525
PORTUGAL	RUSSIA	.5731*	.1966	.041	1.265E-02	1.1335
	DEN/SWEDEN	3.667E-02	.1652	1.000	-.4342	.5075
	FRANCE	-.4347	.1898	.234	-.9758	.1064
	GERMANY	-.1578	.1735	1.000	-.6525	.3370

* The mean difference is significant at the .05 level.

Table 24. Bonferroni test for Right MDBL - M2.

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) COUNTRY	(J) COUNTRY				Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.4211	.2236	.618	-1.0591	.2169
	FRANCE	-.8088*	.2359	.008	-1.4819	-.1357
	GERMANY	-.4779	.2399	.484	-1.1625	.2068
	PORTUGAL	-.4282	.1841	.215	-.9535	9.704E-02
DEN/SWEDEN	RUSSIA	.4211	.2236	.618	-.2169	1.0591
	FRANCE	-.3877	.2193	.792	-1.0134	.2379
	GERMANY	-5.6767E-02	.2236	1.000	-.6948	.5812
	PORTUGAL	-7.1286E-03	.1622	1.000	-.4700	.4557
FRANCE	RUSSIA	.8088*	.2359	.008	.1357	1.4819
	DEN/SWEDEN	.3877	.2193	.792	-.2379	1.0134
	GERMANY	.3310	.2359	1.000	-.3422	1.0041
	PORTUGAL	.3806	.1788	.351	-.1296	.8908
GERMANY	RUSSIA	.4779	.2399	.484	-.2068	1.1625
	DEN/SWEDEN	5.677E-02	.2236	1.000	-.5812	.6948
	FRANCE	-.3310	.2359	1.000	-1.0041	.3422
	PORTUGAL	4.964E-02	.1841	1.000	-.4756	.5749
PORTUGAL	RUSSIA	.4282	.1841	.215	-9.7044E-02	.9535
	DEN/SWEDEN	7.129E-03	.1622	1.000	-.4557	.4700
	FRANCE	-.3806	.1788	.351	-.8908	.1296
	GERMANY	-4.9638E-02	.1841	1.000	-.5749	.4756

* The mean difference is significant at the .05 level.

Table 25. Bonferroni test for Right MDBL - M3.

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) COUNTRY	(J) COUNTRY				Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.3544	.2537	1.000	-1.0832	.3743
	FRANCE	-.8473*	.2713	.023	-1.6263	-6.8258E-02
	GERMANY	-.3317	.2913	1.000	-1.1684	.5050
	PORTUGAL	-.4092	.2144	.593	-1.0251	.2067
DEN/SWEDEN	RUSSIA	.3544	.2537	1.000	-.3743	1.0832
	FRANCE	-.4929	.2713	.723	-1.2719	.2862
	GERMANY	2.273E-02	.2913	1.000	-.8139	.8594
	PORTUGAL	-5.4762E-02	.2144	1.000	-.6707	.5611
FRANCE	RUSSIA	.8473*	.2713	.023	6.826E-02	1.6263
	DEN/SWEDEN	.4929	.2713	.723	-.2862	1.2719
	GERMANY	.5156	.3067	.959	-.3653	1.3964
	PORTUGAL	.4381	.2349	.652	-.2366	1.1128
GERMANY	RUSSIA	.3317	.2913	1.000	-.5050	1.1684
	DEN/SWEDEN	-2.2727E-02	.2913	1.000	-.8594	.8139
	FRANCE	-.5156	.3067	.959	-1.3964	.3653
	PORTUGAL	-7.7489E-02	.2578	1.000	-.8180	.6630
PORTUGAL	RUSSIA	.4092	.2144	.593	-.2067	1.0251
	DEN/SWEDEN	5.476E-02	.2144	1.000	-.5611	.6707
	FRANCE	-.4381	.2349	.652	-1.1128	.2366
	GERMANY	7.749E-02	.2578	1.000	-.6630	.8180

* The mean difference is significant at the .05 level.

Tables 22 to 25 illustrate the usefulness of the Bonferroni test. The results of the tests for Right MDBL indicate that the significant differences for the P2 measurement are between Russia and France, and France and Portugal. The significant differences for M1 exist between Russia and France, Russia and Germany, and Russia and Portugal. The significant differences found in the ANOVA for M2 and M3 are actually between Russia and France.

Table 26. Bonferroni test for Right MXBL - M1.

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) COUNTRY	(J) COUNTRY				Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.9550*	.2062	.000	-1.5450	-.3650
	FRANCE	-1.3383*	.2331	.000	-2.0053	-.6714
	GERMANY	-1.0073*	.2381	.000	-1.6886	-.3260
	PORTUGAL	-1.1692*	.1820	.000	-1.6902	-.6483
DEN/SWEDEN	RUSSIA	.9550*	.2062	.000	.3650	1.5450
	FRANCE	-.3833	.2004	.582	-.9567	.1901
	GERMANY	-5.2273E-02	.2062	1.000	-.6423	.5377
	PORTUGAL	-.2142	.1377	1.000	-.6083	.1799
FRANCE	RUSSIA	1.3383*	.2331	.000	.6714	2.0053
	DEN/SWEDEN	.3833	.2004	.582	-.1901	.9567
	GERMANY	.3311	.2331	1.000	-.3359	.9980
	PORTUGAL	.1691	.1754	1.000	-.3329	.6711
GERMANY	RUSSIA	1.0073*	.2381	.000	.3260	1.6886
	DEN/SWEDEN	5.227E-02	.2062	1.000	-.5377	.6423
	FRANCE	-.3311	.2331	1.000	-.9980	.3359
	PORTUGAL	-.1620	.1820	1.000	-.6829	.3590
PORTUGAL	RUSSIA	1.1692*	.1820	.000	.6483	1.6902
	DEN/SWEDEN	.2142	.1377	1.000	-.1799	.6083
	FRANCE	-.1691	.1754	1.000	-.6711	.3329
	GERMANY	.1620	.1820	1.000	-.3590	.6829

* The mean difference is significant at the .05 level.

Table 27. Bonferroni test for Right MXBL - M2.

(I) COUNTRY	(J) COUNTRY	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.7853*	.2667	.039	-1.5492	-2.1436E-02
	FRANCE	-1.1270*	.2895	.002	-1.9563	-.2977
	GERMANY	-.4187	.2895	1.000	-1.2480	.4106
	PORTUGAL	-.8458*	.2299	.004	-1.5043	-.1872
DEN/SWEDEN	RUSSIA	.7853*	.2667	.039	2.144E-02	1.5492
	FRANCE	-.3417	.2520	1.000	-1.0635	.3801
	GERMANY	.3667	.2520	1.000	-.3551	1.0885
	PORTUGAL	-6.0417E-02	.1804	1.000	-.5772	.4563
FRANCE	RUSSIA	1.1270*	.2895	.002	.2977	1.9563
	DEN/SWEDEN	.3417	.2520	1.000	-.3801	1.0635
	GERMANY	.7083	.2761	.116	-8.2375E-02	1.4990
	PORTUGAL	.2812	.2127	1.000	-.3280	.8905
GERMANY	RUSSIA	.4187	.2895	1.000	-.4106	1.2480
	DEN/SWEDEN	-.3667	.2520	1.000	-1.0885	.3551
	FRANCE	-.7083	.2761	.116	-1.4990	8.238E-02
	PORTUGAL	-.4271	.2127	.471	-1.0364	.1822
PORTUGAL	RUSSIA	.8458*	.2299	.004	.1872	1.5043
	DEN/SWEDEN	6.042E-02	.1804	1.000	-.4563	.5772
	FRANCE	-.2812	.2127	1.000	-.8905	.3280
	GERMANY	.4271	.2127	.471	-.1822	1.0364

* The mean difference is significant at the .05 level.

Tables 26 and 27 illustrate that the significant results from the ANOVA of Right MXBL are the result of significant differences between Russia and Denmark, Russia and France, Russia and Germany, and Russia and Portugal for M1, and for M2, the greatest differences were between Russia and Denmark, Russia and France, and Russia and Portugal. It should be noted that although the ANOVA for M3 of Right MXBL is significant (Table 16), a Bonferroni test was not conducted on M3 because the test requires that the variances be homogeneous, and M3 of MXBL failed the Levene's test (page 156 of Appendix C).

Table 28. Bonferroni test for Right MXMD - M1.

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
(I) COUNTRY	(J) COUNTRY				Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.8559*	.2348	.004	-1.5273	-.1844
	FRANCE	-.4183	.2581	1.000	-1.1563	.3197
	GERMANY	-.7678*	.2624	.041	-1.5181	-1.7396E-02
	PORTUGAL	-.6016*	.2088	.047	-1.1988	-4.4504E-03
DEN/SWEDEN	RUSSIA	.8559*	.2348	.004	.1844	1.5273
	FRANCE	.4376	.2171	.461	-.1833	1.0585
	GERMANY	8.813E-02	.2223	1.000	-.5474	.7237
	PORTUGAL	.2543	.1554	1.000	-.1901	.6987
FRANCE	RUSSIA	.4183	.2581	1.000	-.3197	1.1563
	DEN/SWEDEN	-.4376	.2171	.461	-1.0585	.1833
	GERMANY	-.3495	.2467	1.000	-1.0549	.3560
	PORTUGAL	-.1833	.1887	1.000	-.7230	.3564
GERMANY	RUSSIA	.7678*	.2624	.041	1.740E-02	1.5181
	DEN/SWEDEN	-8.8127E-02	.2223	1.000	-.7237	.5474
	FRANCE	.3495	.2467	1.000	-.3560	1.0549
	PORTUGAL	.1662	.1946	1.000	-.3903	.7226
PORTUGAL	RUSSIA	.6016*	.2088	.047	4.450E-03	1.1988
	DEN/SWEDEN	-.2543	.1554	1.000	-.6987	.1901
	FRANCE	.1833	.1887	1.000	-.3564	.7230
	GERMANY	-.1662	.1946	1.000	-.7226	.3903

* The mean difference is significant at the .05 level.

Table 29. Bonferroni test for Right MXMD - M2.

(I) COUNTRY	(J) COUNTRY	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
RUSSIA	DEN/SWEDEN	-.5053	.2606	.549	-1.2505	.2400
	FRANCE	-.1218	.2755	1.000	-.9095	.6660
	GERMANY	.3566	.2874	1.000	-.4653	1.1785
	PORTUGAL	-.3818	.2321	1.000	-1.0456	.2819
DEN/SWEDEN	RUSSIA	.5053	.2606	.549	-.2400	1.2505
	FRANCE	.3835	.2245	.902	-.2585	1.0256
	GERMANY	.8619*	.2391	.005	.1783	1.5455
	PORTUGAL	.1234	.1686	1.000	-.3586	.6054
FRANCE	RUSSIA	.1218	.2755	1.000	-.6660	.9095
	DEN/SWEDEN	-.3835	.2245	.902	-1.0256	.2585
	GERMANY	.4784	.2552	.632	-.2513	1.2080
	PORTUGAL	-.2601	.1907	1.000	-.8054	.2852
GERMANY	RUSSIA	-.3566	.2874	1.000	-1.1785	.4653
	DEN/SWEDEN	-.8619*	.2391	.005	-1.5455	-.1783
	FRANCE	-.4784	.2552	.632	-1.2080	.2513
	PORTUGAL	-.7385*	.2076	.005	-1.3321	-.1448
PORTUGAL	RUSSIA	.3818	.2321	1.000	-.2819	1.0456
	DEN/SWEDEN	-.1234	.1686	1.000	-.6054	.3586
	FRANCE	.2601	.1907	1.000	-.2852	.8054
	GERMANY	.7385*	.2076	.005	.1448	1.3321

* The mean difference is significant at the .05 level.

Tables 28 and 29 indicate that the ANOVA results for Right MXMD are the result of significant differences between Russia and Denmark, Russia and Germany, and Russia and Portugal for M1, and between Germany and Denmark, and Germany and Portugal for M2.

Because the ANOVA results were not significant for Right MDMD (Tables 7-11), Bonferroni tests were not conducted.

To summarize the univariate statistics, the ANOVA indicates that significant differences do exist for several of the tooth categories (9 of 20 tests). The Bonferroni test allows us to further examine the significant ANOVA tests, and these indicate that most of the significant differences are found between Russia and the other countries, to varying degrees. Other significant differences are seen between Germany and Denmark and Portugal and between France and Portugal.

4.23 Discriminant Analysis with Canonical Variables

The analysis by Meiklejohn et al. (n.d.) examined craniometric variability using a series of canonical analyses. A preliminary review of the literature reveals that various multivariate statistical techniques can be useful and appropriate for examining both within and between population differences in tooth size. It was assessed that in order for the results of this study to be comparable to that conducted by Meiklejohn et al., a discriminant analysis using canonical variables would be appropriate. SPSS Version 10.0 was used for the analysis.

The issue of missing data and small sample sizes must be discussed in relation to the discriminant analysis. During the data testing and ANOVA, each tooth category was analyzed separately (eg. M3 of Right MDBL) and the maximum number of results could be used. However, when an analysis is conducted which uses more than one column of data (eg. P1, P2, M1, M2, and M3 of Right MDBL), such as a discriminant analysis, the program eliminates those cases with one or more missing fields. This means that if one individual is missing M3, then the measurements for the other four teeth of the same individual, although present, are eliminated from that analysis (Table 31). This resulted in extremely low sample sizes for some of the countries (Tables 30 and 31). In order to offset the reduced sample size which could result, the data analyzed were reduced further to include only 3 teeth (Tables 32 and 33). Although not an ideal situation, this meant that the sample size was increased because the chances of an individual having those three teeth were greater than the odds that all five tooth measurements were available. The three teeth used in the discriminant analysis are P2, M1, and M2.

Table 30. Group Statistics - Right MDBL - 5 teeth

COUNTRY		Valid N (listwise)
RUSSIA	RIGHTM3	7
	RIGHTM2	7
	RIGHTM1	7
	RIGHTP2	7
	RIGHTP1	7
DEN/SWEDEN	RIGHTM3	10
	RIGHTM2	10
	RIGHTM1	10
	RIGHTP2	10
	RIGHTP1	10
FRANCE	RIGHTM3	11
	RIGHTM2	11
	RIGHTM1	11
	RIGHTP2	11
	RIGHTP1	11
GERMANY	RIGHTM3	7
	RIGHTM2	7
	RIGHTM1	7
	RIGHTP2	7
	RIGHTP1	7
PORTUGAL	RIGHTM3	14
	RIGHTM2	14
	RIGHTM1	14
	RIGHTP2	14
	RIGHTP1	14
Total	RIGHTM3	49
	RIGHTM2	49
	RIGHTM1	49
	RIGHTP2	49
	RIGHTP1	49

Table 31. Analysis Case Processing Summary - Right MDBL - 5 teeth

Unweighted Cases		N	Percent
Valid		49	17.1
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	238	82.9
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	238	82.9
Total		287	100.0

Table 32. Group Statistics - Right MDBL - 3 teeth

COUNTRY		Valid N (listwise)
RUSSIA	RIGHTM2	9
	RIGHTM1	9
	RIGHTP2	9
DEN/SWEDEN	RIGHTM2	11
	RIGHTM1	11
	RIGHTP2	11
FRANCE	RIGHTM2	12
	RIGHTM1	12
	RIGHTP2	12
GERMANY	RIGHTM2	11
	RIGHTM1	11
	RIGHTP2	11
PORTUGAL	RIGHTM2	42
	RIGHTM1	42
	RIGHTP2	42
Total	RIGHTM2	85
	RIGHTM1	85
	RIGHTP2	85

Table 33. Analysis Case Processing Summary - Right MDBL - 3 teeth

Unweighted Cases		N	Percent
Valid		85	29.6
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	202	70.4
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	202	70.4
Total		287	100.0

Tables 30 to 33 illustrate the issue of missing data. By reducing the data analyzed from 5 tooth categories to 3, sample size is increased from N = 49 to N = 85 for right MDBL. This is an issue which must be dealt with when conducting a multivariate analysis. It must be decided whether a decrease in the variables used is worth the subsequent increase in sample size. In the present study, it has been determined that an already small sample size may adversely affect the results, and every effort must be made to increase that sample size.

A discriminant analysis is used to identify a linear combination of predictor variables that best characterizes the differences among groups. It allows the researcher to combine information from two or more variables, which can enhance the separation of groups (SPSS 1999:243). The discriminant analysis determines a direction in which to project the plot points that maximizes the differences between groups (SPSS 1999:244). For models with more than two groups, the analysis uses canonical variables (SPSS 1999:246).

A linear combination of the variables that maximizes the differences between the means of the *k* groups ($k = 5$ in this study) in one dimension produces the first canonical variable. The second canonical variable represents the maximum dispersion of the means in a direction perpendicular to the first direction. The third canonical variable represents the spread of the means in a dimension independent of the first two (SPSS 1999:243-246). In the present analysis, the first two canonical variables account for a large proportion of the variability, and scatterplots of the first and second canonical discriminant funtions provide a summary of groups differences (Figures 3 to 6).

Figure 3. Canonical Discriminant Functions, Right MDBL

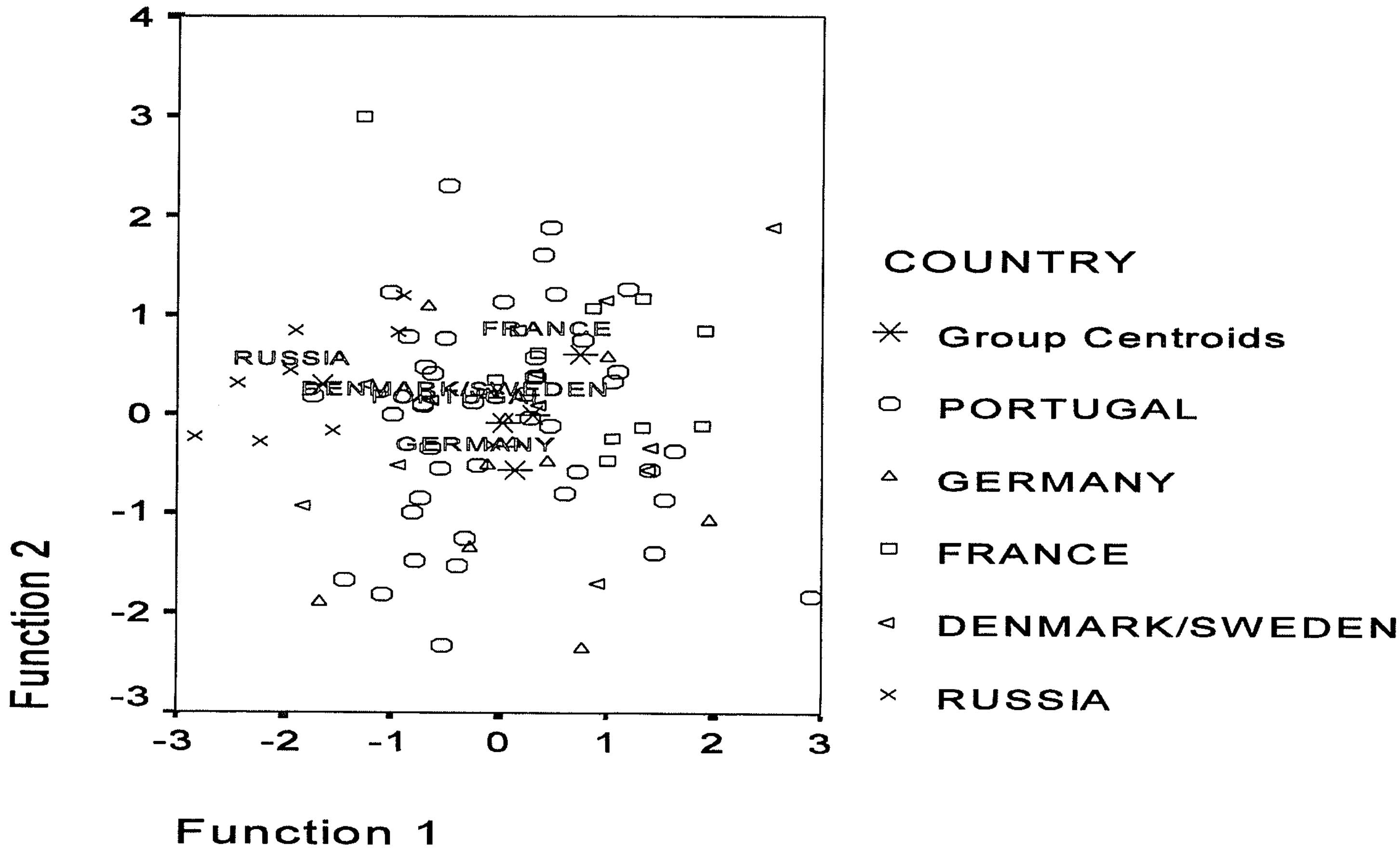


Figure 4. Canonical Discriminant Functions, Right MXBL

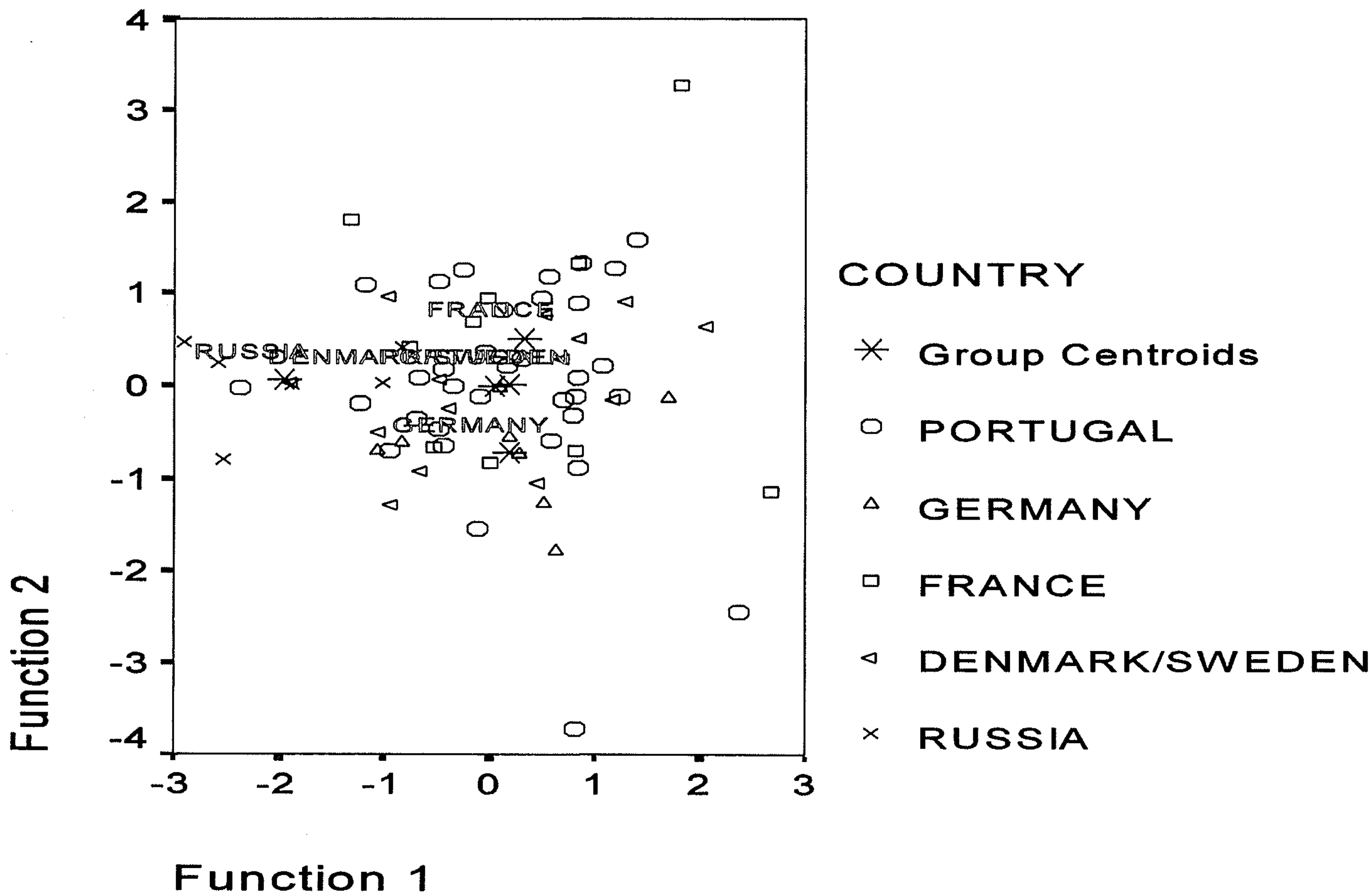


Figure 5. Canonical Discriminant Functions, Right MDMD

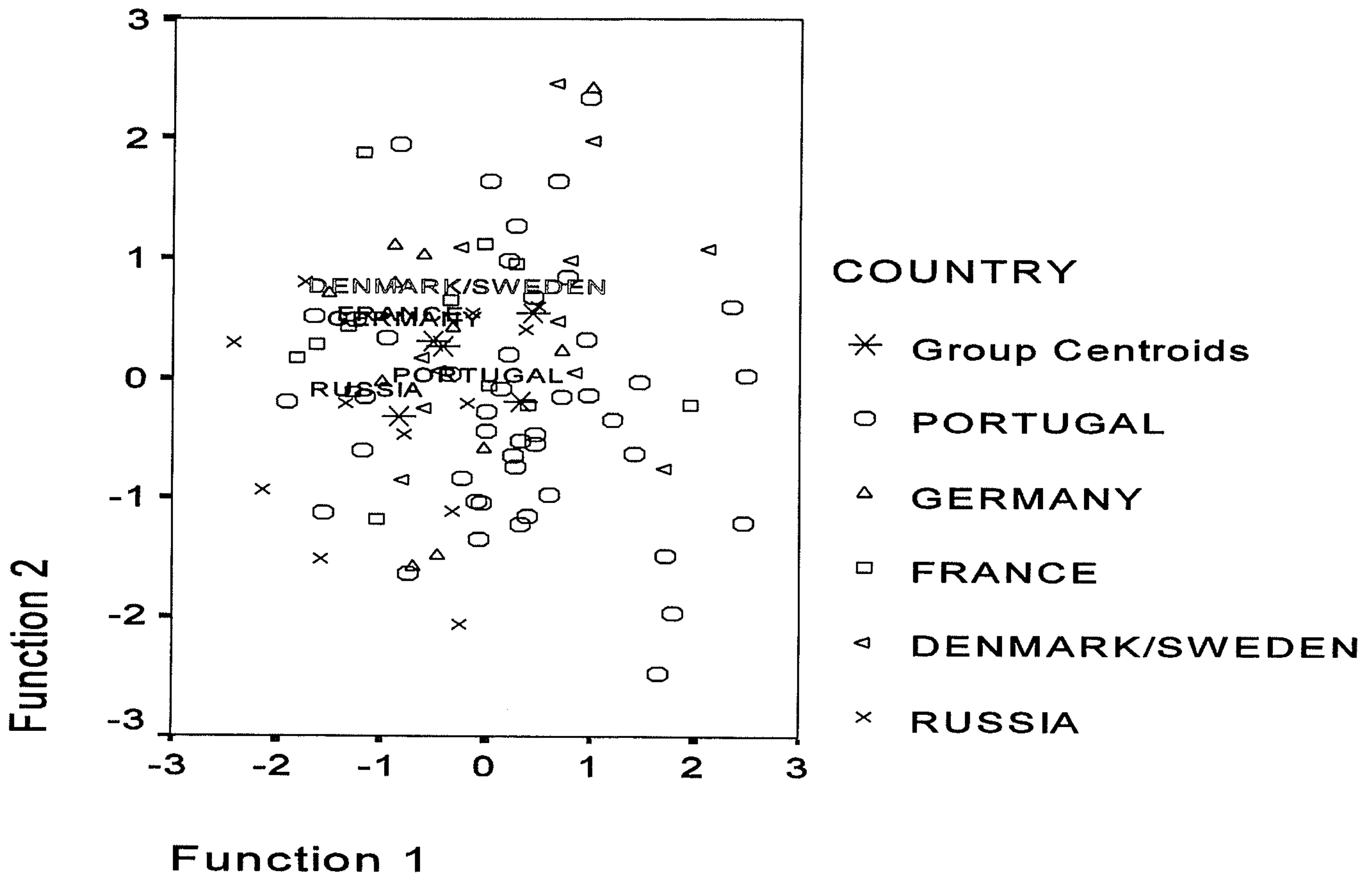
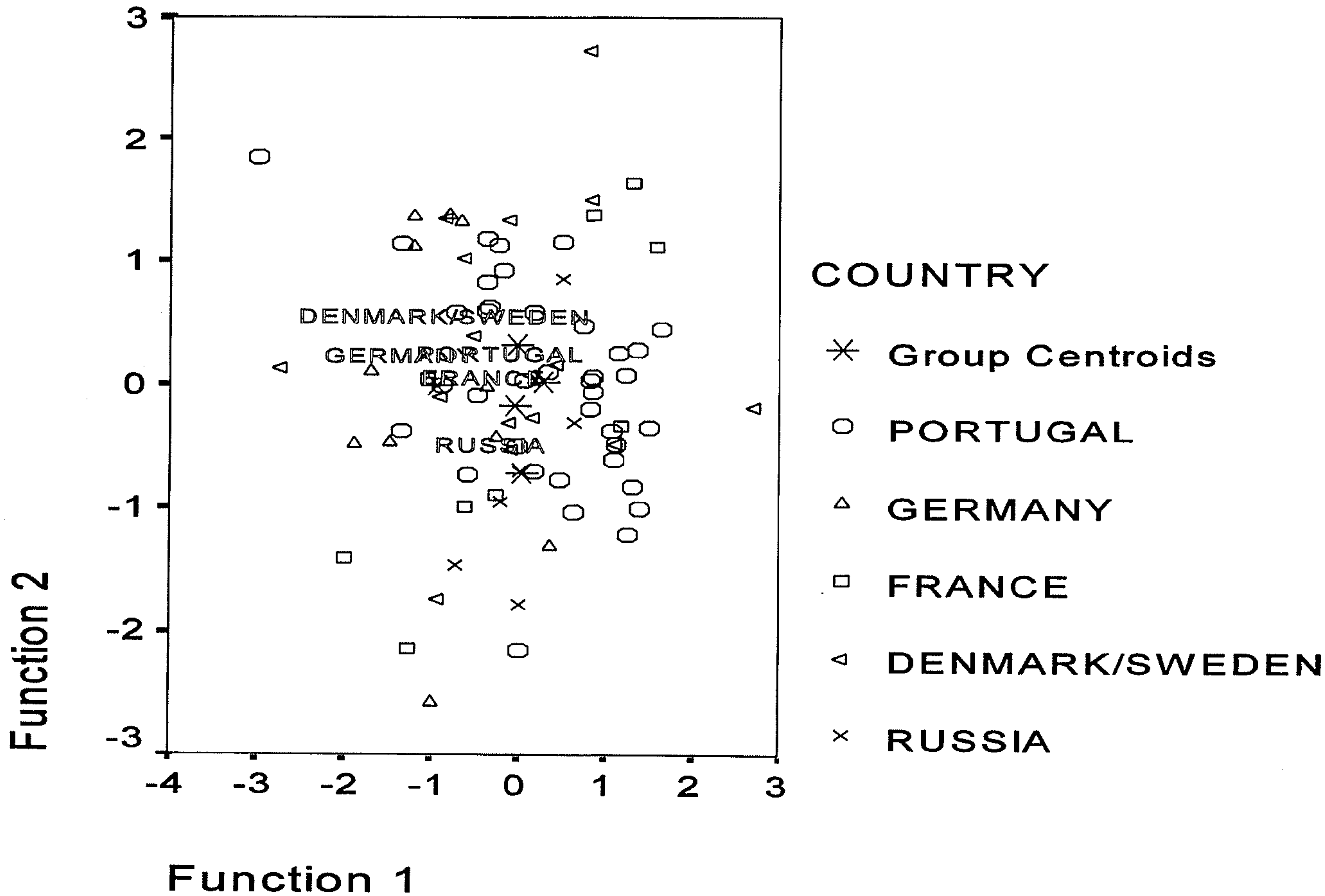


Figure 6. Canonical Discriminant Functions, Right MXMD



The discriminant analysis of Right MDBL revealed canonical discriminant functions similar to those found by Meiklejohn et al (n.d.). The cloud of points in two-dimensional space reveals a separation between the centroids of Russia and the four other groups that is visible to the reader (see Figure 3). These results are repeated again in the canonical discriminant functions for Right MXBL, where the centroid for the Russian sample is once again visibly separated from the other 4 groups (Figure 4). Interestingly, the results for Right MDMD reveal that none of the centroids of the 5 groups are clearly separated from any other (Figure 5). The results for Right MXMD do not reveal a clear, visible separation between any of the groups, although the centroids of Russia and Germany are each somewhat separate from the other 3 groups (Figure 6).

It is fairly well-established that mesiodistal (MD) measurements are prone to higher intra-observer error and are also more affected by wear, etc (Hillson 1996). In Coppa et al (1998), the researchers decided to only look at BL of several populations because of the decreased reliability of the MD measurement. The multivariate analysis conducted here showed a separation between Russia and the four other countries which is only evident in the BL, not the MD (regardless of maxillae/mandible).

Pairwise group comparisons indicate which groups are most alike or different. Each F in the tables below is a measure of the distance or variance between each pair. This is the same F statistic used in ANOVA. Tables 34 and 36 illustrate that for Right MDBL and Right MXBL Russia is the most different from all other countries, while none of the others are significantly different from each other. Table 35 illustrates that for Right MDMD, Russia is significantly different from Denmark/Sweden and Portugal, Denmark/Sweden is also significantly different from France, and France is also significantly different from Portugal. Due to data limitations, a pairwise group comparison was not possible for Right MXMD.

Table 34. Right MDBL Pairwise group comparisons

Step	COUNTRY		RUSSIA	DEN/SWEDEN	FRANCE	GERMANY	PORTUGAL
1	RUSSIA	F		17.601	22.712	16.551	20.859
		Sig.		.000	.000	.000	.000
	DEN/SWEDEN	F	17.601		.267	.018	.377
		Sig.	.000		.607	.894	.541
	FRANCE	F	22.712	.267		.427	1.677
		Sig.	.000	.607		.515	.199
	GERMANY	F	16.551	.018	.427		.199
		Sig.	.000	.894	.515		.657
	PORTUGAL	F	20.859	.377	1.677	.199	
		Sig.	.000	.541	.199	.657	

a 1, 80 degrees of freedom for step 1.

Table 35. Right MDMD Pairwise group comparisons

Step	COUNTRY		RUSSIA	DEN/SWEDEN	FRANCE	GERMANY	PORTUGAL
1	RUSSIA	F		12.640	1.176	2.369	11.500
		Sig.		.001	.281	.127	.001
	DEN/SWEDEN	F	12.640		6.106	3.756	1.202
		Sig.	.001		.015	.056	.276
	FRANCE	F	1.176	6.106		.229	4.091
		Sig.	.281	.015		.633	.046
	GERMANY	F	2.369	3.756	.229		1.840
		Sig.	.127	.056	.633		.178
	PORTUGAL	F	11.500	1.202	4.091	1.840	
		Sig.	.001	.276	.046	.178	

a 1, 89 degrees of freedom for step 1.

Table 36. Right MXBL Pairwise group comparisons

Step	COUNTRY		RUSSIA	DEN/SWEDEN	FRANCE	GERMANY	PORTUGAL
1	RUSSIA	F		15.970	20.076	13.169	22.298
		Sig.		.000	.000	.001	.000
	DEN/SWEDEN	F	15.970		.772	.000	.197
		Sig.	.000		.383	.982	.658
	FRANCE	F	20.076	.772		.557	.384
		Sig.	.000	.383		.458	.538
	GERMANY	F	13.169	.000	.557		.111
		Sig.	.001	.982	.458		.740
	PORTUGAL	F	22.298	.197	.384	.111	
		Sig.	.000	.658	.538	.740	

a 1, 67 degrees of freedom for step 1.

Additional results of the discriminant analysis with canonical variables are discussed below.

4.231 Right MDBL

Variables not in the Analysis (Table 37) illustrates the stepwise selection of variables (SPSS 1999:274). In this case, right M1 has the largest *F* to Enter so this variable is entered into the model first. For each variable in the model, the *F* to Remove (see Variables in the Analysis-Table 38) and Wilks' Lambda describe what happens if the variable is removed from the current model (given that the others remain) (SPSS 1999:274-275). Table 38 indicates that if Right M1 is removed, then the model is no longer valid, illustrated by the absence of steps after Step 1. Based on these results, it would be possible to redo the analysis using only the M1variable, which would increase the sample size for M1, because cases would not be deleted in a listwise manner. However, this would make it more difficult for the researcher to look at the potential usefulness of a combination of variables.

Table 37. Variables Not in the Analysis - Right MDBL

Step		Tolerance	Min. Tolerance	F to Enter	Wilks' Lambda
0	RIGHTM2	1.000	1.000	3.509	.851
	RIGHTM1	1.000	1.000	6.945	.742
	RIGHTP2	1.000	1.000	6.260	.762
1	RIGHTM2	.472	.472	1.128	.702
	RIGHTP2	.648	.648	2.578	.657

Table 38. Variables in the Analysis - Right MDBL

Step		Tolerance	F to Remove
1	RIGHTM1	1.000	6.945

Classification Results (Table 39) illustrates the group membership that is predicted by the analysis. The results for Right MDBL indicate that only 35.6 percent of the original cases were classified correctly. The group with the highest number of individuals correctly classified is Russia, with 83.3 percent of the individuals predicted as being Russian. This is followed by France, with 61.5 percent of cases correctly classified, and Portugal, with 38.9 percent correctly classified. Zero of the Denmark/Sweden and German cases were correctly classified as belonging to their respective groups.

Table 39. Classification Results - Right MDBL

			Predicted	Group	Membership			Total
		COUNTRY	RUSSIA	DEN/ SWEDEN	FRANCE	GERMANY	PORTUGAL	
Original	Count	RUSSIA	10	0	1	0	1	12
		DEN/SWEDEN	9	0	6	0	3	18
		FRANCE	1	1	8	0	3	13
		GERMANY	3	0	3	0	10	16
		PORTUGAL	28	5	22	0	35	90
	%	RUSSIA	83.3	.0	8.3	.0	8.3	100.0
		DEN/SWEDEN	50.0	.0	33.3	.0	16.7	100.0
		FRANCE	7.7	7.7	61.5	.0	23.1	100.0
		GERMANY	18.8	.0	18.8	.0	62.5	100.0
		PORTUGAL	31.1	5.6	24.4	.0	38.9	100.0

a 35.6% of original grouped cases correctly classified.

An eigenvalue is a ratio of the between-groups sum of squares to the within-groups sum of squares. The size of the eigenvalue is useful for measuring the spread of the group centroids in the corresponding dimension of multivariate space (SPSS 1999:254). The largest eigenvalue (0.404 for Right MDBL - table 40) corresponds to the canonical variable in the direction of the maximum spread of the group means (SPSS 1999:276). In this case, the first canonical variable accounts for 77.1 percent of the total dispersion. The second canonical variable accounts for another 21.4 percent of the total dispersion, while the third only accounts for 1.5 percent of the total dispersion.

Table 40. Eigenvalues - Right MDBL

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.404	77.1	77.1	.537
2	.112	21.4	98.5	.317
3	.008	1.5	100.0	.089

a First 3 canonical discriminant functions were used in the analysis.

In the Wilks' Lambda table (table 41), the test of functions labelled "1 through 3" tests the hypothesis that the means (centroids) of all 3 canonical variables (3 functions) are equal in the five groups (SPSS 1999:276-277). The *p* value or "Sig." is less than 0.000 and so the hypothesis of equality is rejected. The tests labelled "2 through 3" and "3" are successive tests that are useful for identifying whether or not the additional canonical variables reflect population differences or only random variation. After removing variable 1 (function 1), Wilks' Lambda is 0.892 and the associated significance level is 0.166, indicating that the centroids of functions "2 through 3" do not differ significantly across the five groups. Therefore, it is not worth keeping functions "2 through 3" and "3".

Table 41. Wilks' Lambda - Right MDBL

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.635	36.297	12	.000
2 through 3	.892	9.132	6	.166
3	.992	.636	2	.727

The structure matrix (table 42) is useful for determining the largest correlation between a variable and the one of the three canonical variables or functions (SPSS 1999:277-278). Table 42 illustrates that Right M1 and Right P2 hav the largest absolute correlation with Function 1 (illustrated by an *) while Right M2 has the largest correlation with Function 3.

Table 42. Structure Matrix - Right MDBL

	Function		
	1	2	3
RIGHTM1	.915*	-.261	.306
RIGHTP2	.830*	.552	-.073
RIGHTM2	.634	.283	.720*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions Variables ordered by absolute size of correlation within function.
* Largest absolute correlation between each variable and any discriminant function

4.232 Right MDMD

The Analysis Case Processing Summary (Table 43) for Right MDMD indicates that a maximum of 284 cases could be analysed in the Right MDMD category. Because many of the cases were missing one measurement or more, the total valid N is 94.

Table 43. Analysis Case Processing Summary - Right MDMD

Unweighted Cases		N	Percent
Valid		94	33.1
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	190	66.9
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	190	66.9
Total		284	100.0

The Variables not in the Analysis table (table 44) for Right MDMD indicates that like Right MDBL, the Right M1 variable has the largest *F* to Enter (4.579), which means that this variable is entered into the model first. Table 45 illustrates that if Right M1 is removed, then the model is no longer valid, which is illustrated by the presence of only

Step 1.

Table 44. Variables Not in the Analysis - Right MDMD

Step		Tolerance	Min. Tolerance	F to Enter	Wilks' Lambda
0	RIGHTM2	1.000	1.000	3.287	.871
	RIGHTM1	1.000	1.000	4.579	.829
	RIGHTP2	1.000	1.000	1.989	.918
1	RIGHTM2	.685	.685	.911	.796
	RIGHTP2	.839	.839	1.654	.771

Table 45. Variables in the Analysis - Right MDMD

Step		Tolerance	F to Remove
1	RIGHTM1	1.000	4.579

The Classification Results for Right MDMD (Table 46) indicate that only 23.1 percent of the original cases were classified correctly. The group with the highest number of individuals correctly classified is the the Denmark/Sweden group with 47.4 percent correctly classified. This is followed by Russia with 46.7 percent, Germany with 31.6 percent, and Portugal with 15.6 percent. Zero of the French cases were correctly classified as belonging to France.

Table 46. Classification Results - Right MDMD

			Predicted	Group	Membership			Total
		COUNTRY	RUSSIA	DEN/ SWEDEN	FRANCE	GERMANY	PORTUGAL	
Original	Count	RUSSIA	7	1	2	3	2	15
		DEN/SWEDEN	8	9	1	1	0	19
		FRANCE	6	3	0	0	4	13
		GERMANY	2	5	4	6	2	19
		PORTUGAL	24	38	4	10	14	90
	%	RUSSIA	46.7	6.7	13.3	20.0	13.3	100.0
		DEN/SWEDEN	42.1	47.4	5.3	5.3	.0	100.0
		FRANCE	46.2	23.1	.0	.0	30.8	100.0
		GERMANY	10.5	26.3	21.1	31.6	10.5	100.0
		PORTUGAL	26.7	42.2	4.4	11.1	15.6	100.0

a 23.1% of original grouped cases correctly classified.

The largest eigenvalue for Right MDMD is 0.235 (Table 47), which corresponds to the canonical variable in the direction of the maximum spread of the group means. In this case, the first canonical variable accounts for 66.9 percent of the total dispersion, the second canonical variable accounts for an additional 26.9 percent of the total dispersion, and the third accounts for 6.2 percent of the total dispersion.

Table 47. Eigenvalues - Right MDMD

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.235	66.9	66.9	.436
2	.094	26.9	93.8	.294
3	.022	6.2	100.0	.145

a First 3 canonical discriminant functions were used in the analysis.

The Wilks' Lambda for Right MDMD (Table 48) illustrates that for functions 1 through 3, the means of the group centroids are not equal, with a significance of p=0.004. The additional tests, 2 through 3 and 3, indicate that the additional canonical variables do not reflect population differences (reflected by the significance levels).

Table 48. Wilks' Lambda - Right MDMD

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.724	28.688	12	.004
2 through 3	.894	9.928	6	.128
3	.979	1.899	2	.387

Table 49 illustrates that for Right MDMD, the variables Right M1 and Right M2, have the largest absolute correlation with Function 1, while Right P2 has the largest correlation with Function 2.

Table 49. Structure Matrix - Right MDMD

		Function	
	1	2	3
RIGHTM1	.909*	.336	-.247
RIGHTM2	.769*	.061	.637
RIGHTP2	.226	.884*	.408

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions Variables ordered by absolute size of correlation within function.

* Largest absolute correlation between each variable and any discriminant function

4.233 Right MXBL

The Analysis Case Processing Summary (Table 50) for Right MXBL indicates that a maximum of 248 cases could be analysed in the Right MXBL category. Because many of the cases were missing one measurement or more, the total valid N is 72.

Table 50. Analysis Case Processing Summary - Right MXBL

Unweighted Cases		N	Percent
Valid		72	29.0
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	176	71.0
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	176	71.0
Total		248	100.0

The Variables not in the Analysis table (Table 51) for Right MXBL indicates that, like Right MDBL and Right MDMD, the variable Right M1 has the largest *F* to Enter, which means that this variable is entered into the model first. Table 52 illustrates that if Right M1 is removed, the following steps are no longer valid.

Table 51. Variables Not in the Analysis - Right MXBL

Step		Tolerance	Min. Tolerance	F to Enter	Wilks' Lambda
0	RIGHTM2	1.000	1.000	2.780	.858
	RIGHTM1	1.000	1.000	6.168	.731
	RIGHTP2	1.000	1.000	1.012	.943
1	RIGHTM2	.609	.609	1.809	.659
	RIGHTP2	.759	.759	.184	.723

Table 52. Variables in the Analysis - Right MXBL

Step		Tolerance	F to Remove
1	RIGHTM1	1.000	6.168

The Classification Results for Right MXBL (table 53) indicate that only 19.0 percent of the original cases were correctly classified. The group with the highest number of individuals correctly classified is Russia, with 81.8 percent of the cases predicted as being Russian. Russia is followed by France with 50 percent of the cases classified correctly, Denmark/Sweden with 22.7 percent correctly classified and Portugal with 4.6 percent classified correctly. Zero of the German cases were classified as being German.

Table 53. Classification Results - Right MXBL

			Predicted	Group	Membership			Total
		COUNTRY	RUSSIA	DEN/ SWEDEN	FRANCE	GERMANY	PORTUGAL	
Original	Count	RUSSIA	9	2	0	0	0	11
		DEN/SWEDEN	8	5	8	0	1	22
		FRANCE	1	4	6	0	1	12
		GERMANY	3	3	2	0	3	11
		PORTUGAL	11	16	35	0	3	65
	%	RUSSIA	81.8	18.2	.0	.0	.0	100.0
		DEN/SWEDEN	36.4	22.7	36.4	.0	4.5	100.0
		FRANCE	8.3	33.3	50.0	.0	8.3	100.0
		GERMANY	27.3	27.3	18.2	.0	27.3	100.0
		PORTUGAL	16.9	24.6	53.8	.0	4.6	100.0

a 19.0% of original grouped cases correctly classified.

The largest eigenvalue (0.380) in Table 54 corresponds to the canonical variable in the direction of the maximum spread of the group means and for Right MXBL accounts for 78.0 percent of the total dispersion. The second canonical variable accounts for 21.1 percent of the total dispersion, while the third accounts for only 0.9 percent of the total dispersion.

Table 54. Eigenvalues - Right MXBL

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.380	78.0	78.0	.525
2	.103	21.1	99.1	.306
3	.004	.9	100.0	.065

a First 3 canonical discriminant functions were used in the analysis.

For Right MXBL the hypothesis of equality of the means of all three canonical variables is rejected (table 55), as illustrated by the p value of 0.005 for functions 1 through 3. After removing function 1 and leaving functions 2 through 3, the Wilks' Lambda of 0.903 is no longer significant, indicating that functions 2 through 3 and 3 do not alter the positions of the centroids of the groups.

Table 55. Wilks' Lambda - Right MXBL

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.654	28.438	12	.005
2 through 3	.903	6.850	6	.335
3	.996	.280	2	.869

The structure matrix (table 56) for Right MXBL illustrates that Right M1 has the largest absolute correlation with Function 1, Right M2 has the largest correlation with Function 2, while Right P2 has the largest correlation with Function 3.

Table 56. Structure Matrix - Right MXBL

	Function		
	1	2	3
RIGHTM1	.980*	.171	.101
RIGHTM2	.478	.876*	.067
RIGHTP2	.370	.216	.903*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions Variables ordered by absolute size of correlation within function.
* Largest absolute correlation between each variable and any discriminant function

4.234 Right MXMD

Table 57, Analysis Case Processing Summary, indicates that 257 cases were available for analysis. Because one or more measurements are missing for many of the cases, the valid N is 80.

Table 57. Analysis Case Processing Summary - Right MXMD

Unweighted Cases		N	Percent
Valid		80	31.1
Excluded	Missing or out-of-range group codes	0	.0
	At least one missing discriminating variable	177	68.9
	Both missing or out-of-range group codes and at least one missing discriminating variable	0	.0
	Total	177	68.9
Total		257	100.0

Variables not in the Analysis (table 58) for Right MXMD indicates that Right M2 has the largest *F* to Enter (2.199) and should be entered into the model first. However, table 59, Variables in the Analysis, indicates that none of the variables are valid for the model, and it is not possible to describe any of the steps.

Table 58. Variables Not in the Analysis - Right MXMD

Step	Variables	Tolerance	Min. Tolerance	F to Enter	Wilks' Lambda
0					
	RIGHTM2	1.000	1.000	2.199	.895
	RIGHTM1	1.000	1.000	1.169	.941
	RIGHTP2	1.000	1.000	.821	.958

Table 59. Variables in the Analysis - Right MXMD

Step	Variables	Tolerance
1		

Table 60 illustrates the Classification Results for Right MXMD and indicates that 53.8 percent of the original cases were classified correctly. Russia and France both had the highest number of individuals correctly classified (66.7 percent), followed by Germany with 63.6 correctly classified and Portugal with 57.9 classified correctly. Predicted group membership was the lowest for Denmark/Sweden, with 25 percent classified correctly.

Table 60. Classification Results - Right MXMD

			Predicted	Group	Membership			Total
		COUNTRY	RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL	
Original	Count	RUSSIA	4	0	1	0	1	6
		DEN/SWEDEN	3	4	2	3	4	16
		FRANCE	1	0	6	1	1	9
		GERMANY	2	0	1	7	1	11
		PORTUGAL	3	4	3	6	22	38
	%	RUSSIA	66.7	.0	16.7	.0	16.7	100.0
		DEN/SWEDEN	18.8	25.0	12.5	18.8	25.0	100.0
		FRANCE	11.1	.0	66.7	11.1	11.1	100.0
		GERMANY	18.2	.0	9.1	63.6	9.1	100.0
		PORTUGAL	7.9	10.5	7.9	15.8	57.9	100.0

a 53.8% of original grouped cases correctly classified.

The largest eigenvalue (0.165 for Right MXMD) corresponds to the canonical variable in the direction of the maximum spread of the group means (Table 61). In this case, the first canonical variable accounts for 65.5 percent of the total dispersion, the second accounts for 26.8 percent of the total dispersion, while the third accounts for 7.7 percent of the total dispersion.

Table 61. Eigenvalues - Right MXMD

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.165	65.5	65.5	.377
2	.068	26.8	92.3	.252
3	.020	7.7	100.0	.138

a First 3 canonical discriminant functions were used in the analysis.

The Wilks' Lambda results for Right MXMD (table 62) indicates that none of the means of the three canonical variables (3 functions) are significantly different from each other. This is illustrated by the *p* value (0.121) for functions 1 through 3. Therefore, it is not worth keeping any of the functions.

Table 62. Wilks' Lambda - Right MXMD

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 3	.788	17.823	12	.121
2 through 3	.919	6.357	6	.384
3	.981	1.449	2	.485

The structure matrix (table 63) for Right MXMD illustrates that Right M2 has the largest absolute correlation with Function 1, Right M1 with Function 2, and Right P2 with

Function 3.

Table 63. Structure Matrix - Right MXMD

	Function		
	1	2	3
RIGHTM2	.718*	.687	-.112
RIGHTM1	-.094	.930*	-.356
RIGHTP2	.085	.694	.715*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions Variables ordered by absolute size of correlation within function.
* Largest absolute correlation between each variable and any discriminant function

5.0 DISCUSSION

It was established in Chapter 2 that dental size is accepted as a primarily inherited trait, and that the analysis of dental metrics can be useful where cranial and/or osseous material is fragmented or absent. Additionally, dental metrics can serve to corroborate or deny results found in previous craniometric and skeletal studies. The results of the analysis conducted above illustrate that dental data can meet the stringent requirements for a multivariate statistical analysis, and can also be useful in confirming previously developed theories on population movements.

In order to begin an analysis using dental data, it must first be established that the data are appropriate for this type of study. Various descriptive tests were conducted: a skewness test, the Kolmogorov-Smirnov test for normality, the Shapiro-Wilk test for normality, and the Levene test for the homogeneity of variance. These tests illustrate that the dental data did meet most of the assumptions necessary to conduct further tests, with some exceptions. Two main difficulties were encountered and dealt with when conducting these tests: small sample sizes and missing data. The issue of small sample sizes is an important one in physical anthropology because researchers do not have the luxury of conducting a "clinical trial" and choosing their sample sizes from random samples at the beginning of their research. Does this mean that studies of small samples should not be conducted? On the contrary, the studies must be conducted in order to maximize the usefulness and potential of historical skeletal samples. Small sample sizes do force the researcher, however, to be more cautious in the conclusions drawn from the research, because of the inherent probability that the samples may not be entirely representative of the once-living population. Results from such studies, even those with small sample sizes, can also be useful to support theories developed from previous research.

Missing data in many ways are a much more difficult problem to overcome. In data sets with small amounts of missing data, the researcher may decide to extrapolate the missing data based on the existing data. This issue is addressed by Hassard (1991) who states that a replacement for a missing value must "not distort the true results in any way" (Hassard 1991:208). In some cases the missing value can be replaced by the mean of other values in the same set of cases. This is really only practical where there is a small number of missing values, particularly because one must reduce the total degrees of freedom (df) by the number of missing value replacements used (Hassard 1991:209). Given that the current data available often had more missing values than present for one particular variable, it was assessed that the data should be analysed as is, with the missing values present. This did have consequences for the sample sizes in the multivariate analysis, as discussed in Chapter 4.23.

Despite these difficulties, it was established that, to a large degree, the data did meet the assumptions required for further analysis. An ANOVA was then conducted on twenty sets of variables (two dental measurements for five tooth categories from two quadrants), which revealed that some of the countries are significantly different from the rest. Bonferroni tests allowed us to establish which countries produced the significant results, as discussed in Chapter 4.22. These results indicated that a majority of the significant differences could be attributed to the Russian sample.

A discriminant analysis with canonical variables was then conducted. The discriminant analysis provided interesting results in that the scatter plots (Figures 3 and 4) for the buccolingual (BL) measurements of both maxillae and mandible clearly indicate a separation between Russia and the four other countries, mirroring the results described in Meiklejohn et al. (n.d.) which is based on cranial data from the same sites. Other output from the analysis was also useful in interpreting differences between the countries. The pairwise group comparisons indicate that for right MDBL and right MXBL Russia is the most different from all other countries, while none of the others are significantly different from each other. The results for right MDMD indicate that Russia is significantly different from Denmark/Sweden and Portugal, Denmark/Sweden is also significantly different from France, and France is also significantly different from Portugal.

The output described in chapter 4.23 indicates that the variables included were not equally useful for producing the results. The first molar (M1) provided the largest *F* values for right MDBL, right MDMD, and right MXBL, indicating that the other two variables included (P2, M2) contributed very little to the significance of the results.

Of interest are the classification results. The accuracy of predicted group membership was quite low: 35.6 percent, 23.1 percent, 19.0 percent, and 53.8 percent. This may be a reflection of the extremely low sample sizes for some of the countries, which may have made it difficult to accurately predict the group membership of each case.

It is generally accepted among anthropologists that dental metrics are not as useful as craniometrics for analysing populations. Where possible, researchers normally rely on cranial data because its usefulness and limitations have been established. It is hoped that the analysis conducted here will contribute to the growing number of studies examining the usefulness and appropriateness of studying dental metric data. This issue is particularly relevant for a researcher examining ancient populations who must, and should, attempt to analyse all of the data available. The following can be extrapolated from the above:

- based on a review of the current literature, it can be safely stated that adult dental measurements are determined to a large degree by genetics,
- analysis of dental measurements can enhance previously formed theories on population shifts,
- dental data should be tested (as was done here) in order to determine if it meets the assumptions necessary for complex statistical analysis,
- a univariate analysis (such as ANOVA) can be useful for predicting the expected results of a multivariate analysis, and
- despite data limitations such as small sample sizes and missing values, dental data can contribute to what is known regarding a particular population that existed in a particular time and place.

It is hoped that future studies into the analysis of ancient dental data can address some of the issues which surfaced here, and that the above can act as a guideline for future researchers of dental metrics.

6.0 CONCLUSIONS

One of the primary objectives of the present study was to determine if the dental metric data for five Mesolithic burial complexes would mirror the results obtained by Meiklejohn et al (n.d.) in their study of the cranial data from the same sites. The canonical analyses conducted by Meiklejohn et al (n.d.) yielded scatter plots similar to those found here (Figures 3 and 4). Based on their scatter plot alone, the Russian sample appeared quite different from the other four site complexes in their study. The pairwise squared distances found by Meiklejohn et al (n.d.) indicated that Oleni ostrov's closest neighbour (based on cranial data) was the Scandinavian sample, while its farthest was the Ofnet site (Germany).

Based on the ANOVA and subsequent Bonferroni tests (see sections 4.21 and 4.22) conducted here, it becomes apparent that the majority of the significant differences found between the populations which occupied the five site complexes can be attributed to Oleni ostrov. The most consistent differences exist between Oleni ostrov and the French sites of Höedic and Téviec. The Bonferroni results do not necessarily mirror the pairwise squared distances found by Meiklejohn et al (n.d.), which indicated that Oleni ostrov's farthest neighbour is Ofnet. The ANOVA and Bonferroni tests are, however, each based on one variable. The discriminant analysis which is based on three variables (P2, M1, and M2) may provide further insight into the population affinities of Oleni ostrov.

The discriminant analysis with canonical variables provides results which can be interpreted visually (the scatter plots in Figures 3-6) as well as statistically (primarily the pairwise group comparisons). The scatter plots for MXBL and MDBL indicate that there is a visible separation between Oleni ostrov and the four other site complexes. While this in itself is not conclusive, the scatter plots do mirror the Bonferroni results, which indicated that the majority of the significant variances could be attributed to differences between Oleni ostrov and the four other sites. It is worthwhile to note that previous researchers have only relied upon the BL measurement, because MD measurements are more prone to intra-observer error and are more affected by wear (Coppa et al. 1998:373-374 and Hillson 1996:70-71). This may lend further weight to the significant BL results found here.

The pairwise group comparison tables (Tables 34-36) provide an *F* statistic based on the multiple variables in the analysis. These indicate that for Right MDBL and MXBL, Oleni ostrov is significantly different from every other site in the analysis (at the $p < 0.001$ level). None of the other four sites are significantly different from each other. The pairwise group comparisons for Right MDMD indicate that Oleni ostrov is significantly different from the Scandinavian sites and the two Portuguese sites (at the $p < 0.001$ level). The Scandinavian sites are significantly different from the French sites (at the $p = 0.015$ level). The two French sites of Höedic and Téviec are also significantly different from Portugal at the $p = 0.046$ level.

In the context of post-glacial Europe and the Mesolithic environment, what do these results tell us about population affinities and genetic relationships? The geography of Europe prior to the Mesolithic was discussed in Chapter 3, particularly the state of sea levels, glacial coverage, and resource availability. It was stated that glaciers were present in the Pyrenees, although a narrow corridor existed between what is now southwestern

France and Spain. This may explain the significant difference found between the French sites and Portuguese sites in the pairwise group comparisons for Right MDMD.

As mentioned in Chapter 3, it is generally accepted that the Iberian peninsula and parts of France were separated from those in (the former) Yugoslavia, Romania and eastern Europe at glacial maximum. If northern Europe was repopulated by groups who had found refuge in these areas, then the significant differences in the pairwise comparisons of MDBL and MXBL lend some credence to this hypothesis. It is also interesting that none of the other four site complexes showed significant differences in the pairwise comparisons of MDBL and MXBL. For example, given the geographic distance between the Portuguese sites and Ofnet in Germany, one might have expected to see significant differences in the pairwise comparisons. This is not the case, although the Bonferroni test for Right M2 of MXMD did indicate a significant difference between Portugal and Germany (at the $p = 0.005$ level). This cannot be considered conclusive given that it is only based on one measurement in one tooth category.

This study supports the hypothesis that the population which used the Oleni ostrov cemetery on Lake Onega in Russia had different origins from the populations which occupied the four other site complexes, located in what is now Denmark, Sweden, Germany, France and Portugal. The difficulties encountered here with regards to small sample sizes and missing data will assist future researchers conducting similar analyses. Should dental data from other European sites be available for analysis, this study will assist in interpreting statements regarding the biological origins of the modern European population.

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8.0 APPENDIX A - ANALYSIS OF SEX DIFFERENCES

Right MDBL - Sex Differences

Russia

Table A-1. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	9	10.3300	.7216	.2405
	FEMALE	9	9.2611	.6029	.2010
RIGHTM2	MALE	7	10.4257	.7378	.2788
	FEMALE	7	9.6900	.4680	.1769
RIGHTM1	MALE	5	10.6160	.4728	.2114
	FEMALE	7	10.0214	.2667	.1008
RIGHTP2	MALE	10	8.1560	.4075	.1289
	FEMALE	8	7.7088	.3659	.1294
RIGHTP1	MALE	9	7.9511	.4685	.1562
	FEMALE	5	7.2020	.4008	.1792

a COUNTRY = RUSSIA

Table A-2. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.745	.401	3.410	16	.004	1.0689	.3135	.4044	1.7334
	Equal variances not assumed			3.410	15.509	.004	1.0689	.3135	.4027	1.7351
RIGHTM2	Equal variances assumed	.403	.537	2.228	12	.046	.7357	.3302	1.621E-02	1.4552
	Equal variances not assumed			2.228	10.156	.050	.7357	.3302	1.450E-03	1.4700
RIGHTM1	Equal variances assumed	1.465	.254	2.794	10	.019	.5946	.2128	.1204	1.0687
	Equal variances not assumed			2.538	5.824	.045	.5946	.2342	1.720E-02	1.1719
RIGHTP2	Equal variances assumed	.075	.787	2.419	16	.028	.4473	.1849	5.523E-02	.8393
	Equal variances not assumed			2.449	15.735	.026	.4473	.1826	5.964E-02	.8349

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.085	.776	3.004	12	.011	.7491	.2494	.2058	1.2924
	Equal variances not assumed			3.151	9.610	.011	.7491	.2377	.2165	1.2817

a COUNTRY = RUSSIA

Denmark/Sweden

Table A-3. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	8	10.3375	.6340	.2242
	FEMALE	7	9.9786	.9055	.3422
RIGHTM2	MALE	8	10.5500	.5318	.1880
	FEMALE	8	10.3000	.7649	.2704
RIGHTM1	MALE	8	11.0438	.5039	.1781
	FEMALE	6	10.6667	.6721	.2744
RIGHTP2	MALE	8	8.6063	.4724	.1670
	FEMALE	5	8.4400	1.0158	.4543
RIGHTP1	MALE	8	8.1625	.4933	.1744
	FEMALE	7	7.8071	.7786	.2943

a COUNTRY = DENMARK/SWEDEN

Table A-4. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	3.295	.093	.899	13	.385	.3589	.3992	-.5034	1.2213
	Equal variances not assumed			.877	10.583	.400	.3589	.4091	-.5459	1.2637
RIGHTM2	Equal variances assumed	.878	.365	.759	14	.460	.2500	.3294	-.4564	.9564
	Equal variances not assumed			.759	12.487	.462	.2500	.3294	-.4645	.9645
RIGHTM1	Equal variances assumed	.744	.405	1.204	12	.252	.3771	.3132	-.3053	1.0595
	Equal variances not assumed			1.153	8.966	.279	.3771	.3271	-.3634	1.1175
RIGHTP2	Equal variances assumed	1.868	.199	.406	11	.693	.1662	.4100	-.7361	1.0686
	Equal variances not assumed			.343	5.101	.745	.1662	.4840	-1.0705	1.4030

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.397	.540	1.071	13	.304	.3554	.3317	-.3613	1.0720
	Equal variances not assumed			1.039	9.908	.324	.3554	.3421	-.4078	1.1185

a COUNTRY = DENMARK/SWEDEN

France

Table A-5. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	7	10.5714	.3402	.1286
	FEMALE	7	10.7143	.6644	.2511
RIGHTM2	MALE	7	10.8000	.4583	.1732
	FEMALE	8	10.9250	.6431	.2274
RIGHTM1	MALE	6	11.2500	.3937	.1607
	FEMALE	7	11.3000	.6298	.2380
RIGHTP2	MALE	6	8.9167	.3601	.1470
	FEMALE	7	8.7571	.2149	8.123E-02
RIGHTP1	MALE	6	7.9500	.6124	.2500
	FEMALE	7	7.8714	.4071	.1539

a COUNTRY = FRANCE

Table A-6. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	5.403	.038	-.506	12	.622	-.1429	.2821	-.7575	.4718
	Equal variances not assumed			-.506	8.943	.625	-.1429	.2821	-.7817	.4960
RIGHTM2	Equal variances assumed	1.842	.198	-.427	13	.676	-.1250	.2926	-.7571	.5071
	Equal variances not assumed			-.437	12.551	.669	-.1250	.2858	-.7447	.4947
RIGHTM1	Equal variances assumed	.172	.686	-.168	11	.870	-5.0000E-02	.2980	-.7058	.6058
	Equal variances not assumed			-.174	10.179	.865	-5.0000E-02	.2872	-.6885	.5885
RIGHTP2	Equal variances assumed	2.296	.158	.989	11	.344	.1595	.1614	-.1957	.5147
	Equal variances not assumed			.950	7.905	.370	.1595	.1680	-.2286	.5476

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.197	.665	.277	11	.787	7.857E-02	.2841	-.5468	.7040
	Equal variances not assumed			.268	8.490	.795	7.857E-02	.2936	-.5916	.7488

a COUNTRY = FRANCE

Germany

Table A-7. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	2	11.0500	.3536	.2500
	FEMALE	8	10.0375	.5125	.1812
RIGHTM2	MALE	3	11.2333	.4163	.2404
	FEMALE	8	10.2125	.2357	8.332E-02
RIGHTM1	MALE	3	11.8000	.2000	.1155
	FEMALE	8	10.8500	.1852	6.547E-02
RIGHTP2	MALE	4	8.5500	.4359	.2179
	FEMALE	8	8.2125	.5167	.1827
RIGHTP1	MALE	3	8.2000	.3464	.2000
	FEMALE	5	7.4600	.3209	.1435

a COUNTRY = GERMANY

Table A-8. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	.137	.721	2.585	8	.032	1.0125	.3917	.1093	1.9157
	Equal variances not assumed			3.279	2.238	.070	1.0125	.3088	-.1892	2.2142
RIGHTM2	Equal variances assumed	1.832	.209	5.275	9	.001	1.0208	.1935	.5831	1.4586
	Equal variances not assumed			4.013	2.499	.039	1.0208	.2544	.1112	1.9304
RIGHTM1	Equal variances assumed	.301	.596	7.442	9	.000	.9500	.1277	.6612	1.2388
	Equal variances not assumed			7.157	3.392	.004	.9500	.1327	.5539	1.3461
RIGHTP2	Equal variances assumed	.003	.961	1.116	10	.291	.3375	.3024	-.3363	1.0113
	Equal variances not assumed			1.187	7.178	.273	.3375	.2844	-.3316	1.0066

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.005	.948	3.074	6	.022	.7400	.2407	.1509	1.3291
	Equal variances not assumed			3.006	4.053	.039	.7400	.2462	6.003E-02	1.4200

a COUNTRY = GERMANY

Portugal

Table A-9. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	16	10.6187	.8134	.2034
	FEMALE	14	9.8000	.4883	.1305
RIGHTM2	MALE	33	10.8303	.4254	7.405E-02
	FEMALE	20	10.2100	.6851	.1532
RIGHTM1	MALE	29	11.2621	.4655	8.645E-02
	FEMALE	21	10.6667	.4487	9.791E-02
RIGHTP2	MALE	28	8.5286	.4768	9.010E-02
	FEMALE	13	8.0923	.3840	.1065
RIGHTP1	MALE	25	8.0960	.4495	8.990E-02
	FEMALE	17	7.9471	.5210	.1264

a COUNTRY = PORTUGAL

Table A-10. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	4.529	.042	3.280	28	.003	.8187	.2496	.3075	1.3300
	Equal variances not assumed			3.388	25.007	.002	.8187	.2416	.3211	1.3164
RIGHTM2	Equal variances assumed	.821	.369	4.076	51	.000	.6203	.1522	.3148	.9258
	Equal variances not assumed			3.646	28.007	.001	.6203	.1702	.2718	.9688
RIGHTM1	Equal variances assumed	.012	.913	4.531	48	.000	.5954	.1314	.3312	.8596
	Equal variances not assumed			4.558	44.164	.000	.5954	.1306	.3322	.8586
RIGHTP2	Equal variances assumed	.829	.368	2.887	39	.006	.4363	.1511	.1306	.7419
	Equal variances not assumed			3.127	28.775	.004	.4363	.1395	.1509	.7217

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.196	.660	.988	40	.329	.1489	.1507	-.1556	.4535
	Equal variances not assumed			.960	31.004	.344	.1489	.1551	-.1673	.4652

a COUNTRY = PORTUGAL

Right MDMD - Sex Differences

Russia

Table A-11. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	8	10.8950	.9252	.3271
	FEMALE	10	10.2250	.8199	.2593
RIGHTM2	MALE	10	10.6890	.8127	.2570
	FEMALE	9	10.1778	.6494	.2165
RIGHTM1	MALE	6	10.8883	.4633	.1891
	FEMALE	9	10.7067	.7315	.2438
RIGHTP2	MALE	10	6.8480	.6160	.1948
	FEMALE	8	6.5763	.4011	.1418
RIGHTP1	MALE	9	6.8256	.7011	.2337

	SEX	N	Mean	Std. Deviation	Std. Error Mean
	FEMALE	5	6.4880	.4420	.1977

a COUNTRY = RUSSIA

Table A-12. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.062	.807	1.628	16	.123	.6700	.4115	-.2023	1.5423
	Equal variances not assumed			1.605	14.200	.130	.6700	.4174	-.2240	1.5640
RIGHTM2	Equal variances assumed	1.215	.286	1.503	17	.151	.5112	.3402	-.2065	1.2289
	Equal variances not assumed			1.521	16.792	.147	.5112	.3360	-.1984	1.2208
RIGHTM1	Equal variances assumed	1.608	.227	.537	13	.600	.1817	.3382	-.5491	.9124
	Equal variances not assumed			.589	12.996	.566	.1817	.3086	-.4850	.8484

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP2	Equal variances assumed	.707	.413	1.075	16	.298	.2718	.2527	-.2639	.8074
	Equal variances not assumed			1.128	15.478	.277	.2718	.2409	-.2404	.7839
RIGHTP1	Equal variances assumed	1.335	.270	.966	12	.353	.3376	.3496	-.4241	1.0992
	Equal variances not assumed			1.103	11.633	.292	.3376	.3061	-.3317	1.0068

a COUNTRY = RUSSIA

Denmark/Sweden

Table A-13. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	9	11.1667	.7583	.2528
	FEMALE	6	10.9250	.8507	.3473
RIGHTM2	MALE	8	10.8438	.4732	.1673
	FEMALE	5	10.9400	.4980	.2227
RIGHTM1	MALE	6	11.3583	.6989	.2853
	FEMALE	5	11.1200	.5805	.2596

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTP2	MALE	7	6.9714	.3592	.1358
	FEMALE	5	7.2900	.3647	.1631
RIGHTP1	MALE	9	7.0389	.3983	.1328
	FEMALE	5	7.1400	.1517	6.782E-02

a COUNTRY = DENMARK/SWEDEN

Table A-14. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.290	.600	.577	13	.574	.2417	.4191	-.6637	1.1470
	Equal variances not assumed			.563	9.954	.586	.2417	.4296	-.7160	1.1994
RIGHTM2	Equal variances assumed	.029	.867	-.350	11	.733	-9.6250E-02	.2750	-.7015	.5090
	Equal variances not assumed			-.346	8.281	.738	-9.6250E-02	.2785	-.7348	.5423

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTM1	Equal variances assumed	.259	.623	.607	9	.559	.2383	.3930	-.6506	1.1273
	Equal variances not assumed			.618	8.997	.552	.2383	.3857	-.6343	1.1110
RIGHTP2	Equal variances assumed	.007	.935	-1.505	10	.163	-.3186	.2116	-.7901	.1530
	Equal variances not assumed			-1.501	8.685	.169	-.3186	.2122	-.8013	.1642
RIGHTP1	Equal variances assumed	3.076	.105	-.538	12	.600	-.1011	.1878	-.5104	.3081
	Equal variances not assumed			-.678	11.196	.511	-.1011	.1491	-.4285	.2263

a COUNTRY = DENMARK/SWEDEN

France

Table A-15. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	6	11.0167	.4834	.1973
	FEMALE	5	10.7400	.8591	.3842

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM2	MALE	6	10.6333	.4967	.2028
	FEMALE	6	10.6000	.6573	.2683
RIGHTM1	MALE	6	11.0333	.3386	.1382
	FEMALE	7	10.9000	.7616	.2878
RIGHTP2	MALE	6	7.0500	.4324	.1765
	FEMALE	6	6.8167	.3312	.1352
RIGHTP1	MALE	6	6.9333	.3445	.1406
	FEMALE	5	6.6400	.5983	.2676

a COUNTRY = FRANCE

Table A-16. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	2.595	.142	.675	9	.516	.2767	.4097	-.6502	1.2035
	Equal variances not assumed			.641	6.052	.545	.2767	.4319	-.7780	1.3313

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTM2	Equal variances assumed	.174	.685	.099	10	.923	3.333E-02	.3363	-.7160	.7827
	Equal variances not assumed			.099	9.306	.923	3.333E-02	.3363	-.7237	.7903
RIGHTM1	Equal variances assumed	9.098	.012	.395	11	.701	.1333	.3377	-.6100	.8767
	Equal variances not assumed			.418	8.542	.687	.1333	.3193	-.5950	.8616
RIGHTP2	Equal variances assumed	.472	.508	1.049	10	.319	.2333	.2224	-.2621	.7288
	Equal variances not assumed			1.049	9.364	.320	.2333	.2224	-.2667	.7334
RIGHTP1	Equal variances assumed	.928	.361	1.021	9	.334	.2933	.2873	-.3565	.9431
	Equal variances not assumed			.970	6.140	.369	.2933	.3023	-.4423	1.0289

a COUNTRY = FRANCE

Germany

Table A-17. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	1	10.9000	.	.
	FEMALE	8	10.4000	.4140	.1464
RIGHTM2	MALE	3	11.1333	.6110	.3528
	FEMALE	8	10.1625	.3420	.1209
RIGHTM1	MALE	3	11.5333	.5859	.3383
	FEMALE	9	10.8556	.2297	7.658E-02
RIGHTP2	MALE	3	7.3000	.4000	.2309
	FEMALE	8	6.6125	.4704	.1663
RIGHTP1	MALE	3	7.4667	.2517	.1453
	FEMALE	5	7.0400	.1517	6.782E-02

a COUNTRY = GERMANY

Table A-18. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	.	.	1.139	7	.292	.5000	.4392	-.5384	1.5384
	Equal variances not assumed			.	.	.	.5000	.	.	.
RIGHTM2	Equal variances assumed	1.784	.214	3.438	9	.007	.9708	.2823	.3321	1.6095
	Equal variances not assumed			2.603	2.488	.097	.9708	.3729	-.3669	2.3086
RIGHTM1	Equal variances assumed	6.708	.027	3.053	10	.012	.6778	.2220	.1831	1.1724
	Equal variances not assumed			1.954	2.209	.178	.6778	.3469	-.6873	2.0428
RIGHTP2	Equal variances assumed	.631	.447	2.229	9	.053	.6875	.3085	-1.0359E-02	1.3854
	Equal variances not assumed			2.416	4.283	.069	.6875	.2846	-8.2471E-02	1.4575

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.665	.446	3.060	6	.022	.4267	.1394	8.553E-02	.7678
	Equal variances not assumed			2.661	2.898	.079	.4267	.1603	-9.3968E-02	.9473

a COUNTRY = GERMANY

Portugal

Table A-19. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	13	10.8769	.7316	.2029
	FEMALE	18	10.4778	.5440	.1282
RIGHTM2	MALE	31	11.1258	.6277	.1127
	FEMALE	21	10.2714	.5377	.1173
RIGHTM1	MALE	28	11.3321	.4861	9.187E-02
	FEMALE	23	10.8783	.6543	.1364
RIGHTP2	MALE	28	6.9036	.3666	6.929E-02
	FEMALE	16	6.6375	.3793	9.481E-02
RIGHTP1	MALE	27	6.9407	.4116	7.922E-02
	FEMALE	18	6.8389	.3090	7.282E-02

a COUNTRY = PORTUGAL

Table A-20. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.162	.690	1.745	29	.092	.3991	.2287	-6.8696E-02	.8670
	Equal variances not assumed			1.663	21.120	.111	.3991	.2400	-9.9855E-02	.8981
RIGHTM2	Equal variances assumed	.007	.932	5.095	50	.000	.8544	.1677	.5176	1.1912
	Equal variances not assumed			5.251	47.169	.000	.8544	.1627	.5271	1.1817
RIGHTM1	Equal variances assumed	4.855	.032	2.840	49	.007	.4539	.1598	.1328	.7750
	Equal variances not assumed			2.759	39.806	.009	.4539	.1645	.1214	.7864
RIGHTP2	Equal variances assumed	.189	.666	2.287	42	.027	.2661	.1163	3.131E-02	.5008
	Equal variances not assumed			2.266	30.472	.031	.2661	.1174	2.640E-02	.5057

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.595	.445	.894	43	.376	.1019	.1139	-.1279	.3316
	Equal variances not assumed			.947	42.305	.349	.1019	.1076	-.1153	.3190

a COUNTRY = PORTUGAL

Right MXBL - Sex Differences

Russia

Table A-21. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	5	11.3440	1.0944	.4894
	FEMALE	5	10.2660	1.0295	.4604
RIGHTM2	MALE	5	11.4060	.5923	.2649
	FEMALE	5	11.0400	.4718	.2110
RIGHTM1	MALE	5	10.9880	.6690	.2992
	FEMALE	6	10.6800	.1482	6.050E-02
RIGHTP2	MALE	4	9.4350	.2094	.1047
	FEMALE	4	8.7300	.5337	.2669
RIGHTP1	MALE	3	9.3867	1.1134	.6428
	FEMALE	3	8.9467	.3700	.2136

a COUNTRY = RUSSIA

Table A-22. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	.039	.849	1.604	8	.147	1.0780	.6719	-.4715	2.6275
	Equal variances not assumed			1.604	7.970	.147	1.0780	.6719	-.4725	2.6285
RIGHTM2	Equal variances assumed	.039	.849	1.081	8	.311	.3660	.3387	-.4149	1.1469
	Equal variances not assumed			1.081	7.619	.313	.3660	.3387	-.4218	1.1538
RIGHTM1	Equal variances assumed	29.515	.000	1.107	9	.297	.3080	.2782	-.3214	.9374
	Equal variances not assumed			1.009	4.328	.366	.3080	.3052	-.5147	1.1307
RIGHTP2	Equal variances assumed	2.794	.146	2.459	6	.049	.7050	.2867	3.564E-03	1.4064
	Equal variances not assumed			2.459	3.902	.071	.7050	.2867	-9.8856E-02	1.5089

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	4.538	.100	.650	4	.551	.4400	.6774	-1.4407	2.3207
	Equal variances not assumed			.650	2.437	.572	.4400	.6774	-2.0272	2.9072

a COUNTRY = RUSSIA

Denmark/Sweden

Table A-23. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	12	11.4625	1.0203	.2945
	FEMALE	10	10.4500	.9104	.2879
RIGHTM2	MALE	10	12.1000	.6749	.2134
	FEMALE	6	11.6250	.6081	.2482
RIGHTM1	MALE	10	12.0900	.5782	.1828
	FEMALE	8	11.4062	.4539	.1605
RIGHTP2	MALE	8	9.7063	.5846	.2067
	FEMALE	7	8.9786	.4982	.1883
RIGHTP1	MALE	8	9.7375	.3926	.1388
	FEMALE	6	8.9250	.6448	.2632

a COUNTRY = DENMARK/SWEDEN

Table A-24. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.004	.950	2.432	20	.025	1.0125	.4164	.1440	1.8810
	Equal variances not assumed			2.458	19.880	.023	1.0125	.4119	.1530	1.8720
RIGHTM2	Equal variances assumed	.361	.557	1.411	14	.180	.4750	.3366	-.2470	1.1970
	Equal variances not assumed			1.451	11.602	.173	.4750	.3274	-.2410	1.1910
RIGHTM1	Equal variances assumed	.653	.431	2.733	16	.015	.6838	.2502	.1534	1.2141
	Equal variances not assumed			2.811	16.000	.013	.6838	.2433	.1680	1.1995
RIGHTP2	Equal variances assumed	.018	.896	2.573	13	.023	.7277	.2828	.1167	1.3386
	Equal variances not assumed			2.603	12.997	.022	.7277	.2796	.1236	1.3317

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	2.106	.172	2.933	12	.013	.8125	.2770	.2089	1.4161
	Equal variances not assumed			2.730	7.739	.027	.8125	.2976	.1222	1.5028

a COUNTRY = DENMARK/SWEDEN

France

Table A-25. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	5	11.5200	.4324	.1934
	FEMALE	4	11.6000	.2828	.1414
RIGHTM2	MALE	6	12.2333	.5279	.2155
	FEMALE	6	12.4667	.9973	.4072
RIGHTM1	MALE	6	12.2000	.2530	.1033
	FEMALE	6	12.1167	.7910	.3229
RIGHTP2	MALE	4	9.8750	.1500	7.500E-02
	FEMALE	7	9.7000	.9764	.3690
RIGHTP1	MALE	4	9.4000	.4082	.2041
	FEMALE	6	9.4167	.3312	.1352

a COUNTRY = FRANCE

Table A-26. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	.176	.687	-.317	7	.760	-8.0000E-02	.2520	-.6759	.5159
	Equal variances not assumed			-.334	6.821	.748	-8.0000E-02	.2396	-.6495	.4895
RIGHTM2	Equal variances assumed	.829	.384	-.507	10	.623	-.2333	.4607	-1.2598	.7931
	Equal variances not assumed			-.507	7.598	.627	-.2333	.4607	-1.3055	.8389
RIGHTM1	Equal variances assumed	9.885	.010	.246	10	.811	8.333E-02	.3390	-.6721	.8387
	Equal variances not assumed			.246	6.012	.814	8.333E-02	.3390	-.7458	.9125
RIGHTP2	Equal variances assumed	1.328	.279	.348	9	.736	.1750	.5026	-.9620	1.3120
	Equal variances not assumed			.465	6.484	.657	.1750	.3766	-.7301	1.0801

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.128	.730	-.071	8	.945	-1.6667E-02	.2337	-.5555	.5222
	Equal variances not assumed			-.068	5.567	.948	-1.6667E-02	.2448	-.6272	.5939

a COUNTRY = FRANCE

Germany

Table A-27. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	2	11.3500	.2121	.1500
	FEMALE	5	10.8400	.4827	.2159
RIGHTM2	MALE	4	12.2500	.5196	.2598
	FEMALE	7	11.3714	.3450	.1304
RIGHTM1	MALE	2	12.4000	.5657	.4000
	FEMALE	7	11.6429	.3690	.1395
RIGHTP2	MALE	3	9.8000	.0000	.0000
	FEMALE	8	9.1125	.2295	8.115E-02
RIGHTP1	MALE	2	9.6500	7.071E-02	5.000E-02
	FEMALE	7	9.0143	.2673	.1010

a COUNTRY = GERMANY

Table A-28. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	.672	.450	1.379	5	.226	.5100	.3698	-.4407	1.4607
	Equal variances not assumed			1.940	4.551	.116	.5100	.2629	-.1863	1.2063
RIGHTM2	Equal variances assumed	1.134	.315	3.406	9	.008	.8786	.2579	.2951	1.4621
	Equal variances not assumed			3.022	4.558	.033	.8786	.2907	.1089	1.6482
RIGHTM1	Equal variances assumed	.733	.420	2.343	7	.052	.7571	.3232	-7.0058E-03	1.5213
	Equal variances not assumed			1.787	1.255	.284	.7571	.4236	-2.6202	4.1345
RIGHTP2	Equal variances assumed	9.143	.014	5.017	9	.001	.6875	.1370	.3775	.9975
	Equal variances not assumed			8.472	7.000	.000	.6875	8.115E-02	.4956	.8794

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.517	.496	3.186	7	.015	.6357	.1995	.1639	1.1076
	Equal variances not assumed			5.640	6.838	.001	.6357	.1127	.3679	.9035

a COUNTRY = GERMANY

Portugal

Table A-29. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	20	11.8100	1.3298	.2973
	FEMALE	8	11.8500	.9212	.3257
RIGHTM2	MALE	26	12.2308	.7677	.1506
	FEMALE	14	11.9500	.6584	.1760
RIGHTM1	MALE	26	12.1962	.4285	8.403E-02
	FEMALE	14	11.8000	.5987	.1600
RIGHTP2	MALE	26	9.6077	.5542	.1087
	FEMALE	10	9.4200	.3155	9.978E-02
RIGHTP1	MALE	25	9.5680	.5640	.1128
	FEMALE	10	9.5600	.5168	.1634

a COUNTRY = PORTUGAL

Table A-30. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.227	.638	-.078	26	.939	-4.0000E-02	.5159	-1.1004	1.0204
	Equal variances not assumed			-.091	18.737	.929	-4.0000E-02	.4410	-.9639	.8839
RIGHTM2	Equal variances assumed	.241	.626	1.157	38	.255	.2808	.2427	-.2106	.7721
	Equal variances not assumed			1.212	30.503	.235	.2808	.2316	-.1919	.7534
RIGHTM1	Equal variances assumed	4.368	.043	2.422	38	.020	.3962	.1635	6.507E-02	.7272
	Equal variances not assumed			2.192	20.354	.040	.3962	.1807	1.957E-02	.7727
RIGHTP2	Equal variances assumed	2.187	.148	1.004	34	.322	.1877	.1869	-.1921	.5674
	Equal variances not assumed			1.272	28.556	.214	.1877	.1475	-.1143	.4897

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	.116	.736	.039	33	.969	8.000E-03	.2064	-.4119	.4279
	Equal variances not assumed			.040	18.078	.968	8.000E-03	.1986	-.4091	.4251

a COUNTRY = PORTUGAL

<u>Right MXMD - Sex Differences</u>

Russia

Table A-31. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	6	8.9600	.9939	.4058
	FEMALE	5	9.0780	1.1156	.4989
RIGHTM2	MALE	5	9.9500	.5639	.2522
	FEMALE	5	9.1940	.3297	.1474
RIGHTM1	MALE	5	9.7100	1.8082	.8086
	FEMALE	6	9.9200	.3396	.1386
RIGHTP2	MALE	4	6.4125	.5815	.2907
	FEMALE	4	6.3025	.5214	.2607
RIGHTP1	MALE	3	6.8733	.2178	.1257

	SEX	N	Mean	Std. Deviation	Std. Error Mean
	FEMALE	3	6.5533	.4429	.2557

a COUNTRY = RUSSIA

Table A-32. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.000	.995	-.186	9	.857	-.1180	.6356	-1.5559	1.3199
	Equal variances not assumed			-.183	8.179	.859	-.1180	.6431	-1.5953	1.3593
RIGHTM2	Equal variances assumed	.810	.394	2.588	8	.032	.7560	.2921	8.236E-02	1.4296
	Equal variances not assumed			2.588	6.448	.039	.7560	.2921	5.307E-02	1.4589
RIGHTM1	Equal variances assumed	4.048	.075	-.282	9	.785	-.2100	.7459	-1.8973	1.4773
	Equal variances not assumed			-.256	4.236	.810	-.2100	.8204	-2.4388	2.0188

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP2	Equal variances assumed	.000	.984	.282	6	.788	.1100	.3905	-.8455	1.0655
	Equal variances not assumed			.282	5.930	.788	.1100	.3905	-.8482	1.0682
RIGHTP1	Equal variances assumed	2.806	.169	1.123	4	.324	.3200	.2849	-.4711	1.1111
	Equal variances not assumed			1.123	2.914	.345	.3200	.2849	-.6021	1.2421

a COUNTRY = RUSSIA

Denmark/Sweden

Table A-33. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	10	8.9900	.7047	.2228
	FEMALE	9	8.9167	.6704	.2235
RIGHTM2	MALE	9	10.1833	.6745	.2248
	FEMALE	8	9.7875	1.0176	.3598
RIGHTM1	MALE	7	10.6571	.4721	.1784
	FEMALE	9	10.5444	.6710	.2237
RIGHTP2	MALE	7	6.5714	.2138	8.081E-02

	SEX	N	Mean	Std. Deviation	Std. Error Mean
	FEMALE	8	6.7375	.4573	.1617
RIGHTP1	MALE	6	7.0167	.2714	.1108
	FEMALE	7	6.7643	.7652	.2892

a COUNTRY = DENMARK/SWEDEN

Table A-34. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	.240	.630	.232	17	.820	7.333E-02	.3165	-.5943	.7410
	Equal variances not assumed			.232	16.936	.819	7.333E-02	.3156	-.5927	.7393
RIGHTM2	Equal variances assumed	1.241	.283	.956	15	.354	.3958	.4140	-.4866	1.2783
	Equal variances not assumed			.933	11.942	.369	.3958	.4243	-.5291	1.3207
RIGHTM1	Equal variances assumed	.628	.441	.376	14	.712	.1127	.2993	-.5293	.7547

		Levene's Test for Equality of Variances		t-test for Equality of Means						
	Equal variances not assumed			.394	13.911	.700	.1127	.2861	-.5013	.7267
RIGHTP2	Equal variances assumed	4.860	.046	-.878	13	.396	-.1661	.1892	-.5749	.2428
	Equal variances not assumed			-.919	10.193	.379	-.1661	.1807	-.5678	.2356
RIGHTP1	Equal variances assumed	2.834	.120	.764	11	.461	.2524	.3305	-.4750	.9798
	Equal variances not assumed			.815	7.692	.440	.2524	.3097	-.4669	.9716

a COUNTRY = DENMARK/SWEDEN

France

Table A-35. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	8	9.3125	.7060	.2496
	FEMALE	4	9.2500	.2887	.1443
RIGHTM2	MALE	9	9.8889	.6918	.2306
	FEMALE	7	9.4429	1.1816	.4466
RIGHTM1	MALE	7	10.4000	.4933	.1864

	SEX	N	Mean	Std. Deviation	Std. Error Mean
	FEMALE	7	10.0857	.6203	.2344
RIGHTP2	MALE	4	6.4500	.2082	.1041
	FEMALE	5	6.5600	.7301	.3265
RIGHTP1	MALE	4	6.8250	.4113	.2056
	FEMALE	4	6.3000	.4761	.2380

a COUNTRY = FRANCE

Table A-36. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
RIGHTM3	Equal variances assumed	1.958	.192	.167	10	.871	6.250E-02	.3744	-.7718	.8968
	Equal variances not assumed			.217	9.885	.833	6.250E-02	.2883	-.5809	.7059
RIGHTM2	Equal variances assumed	1.773	.204	.948	14	.359	.4460	.4706	-.5632	1.4553
	Equal variances not assumed			.887	9.139	.398	.4460	.5026	-.6884	1.5804

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTM1	Equal variances assumed	.440	.520	1.049	12	.315	.3143	.2995	-.3384	.9669
	Equal variances not assumed			1.049	11.421	.316	.3143	.2995	-.3421	.9706
RIGHTP2	Equal variances assumed	7.241	.031	-.288	7	.781	-.1100	.3813	-1.0117	.7917
	Equal variances not assumed			-.321	4.788	.762	-.1100	.3427	-1.0027	.7827
RIGHTP1	Equal variances assumed	.765	.415	1.669	6	.146	.5250	.3146	-.2447	1.2947
	Equal variances not assumed			1.669	5.876	.147	.5250	.3146	-.2487	1.2987

a COUNTRY = FRANCE

Germany

Table A-37. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	3	8.3000	1.0392	.6000
	FEMALE	5	8.2600	.5225	.2337
RIGHTM2	MALE	4	9.5500	.7047	.3524

	SEX	N	Mean	Std. Deviation	Std. Error Mean
	FEMALE	8	9.0625	.5528	.1954
RIGHTM1	MALE	3	11.0667	.2309	.1333
	FEMALE	8	10.2875	.6175	.2183
RIGHTP2	MALE	3	7.1000	.3464	.2000
	FEMALE	8	6.2625	.3852	.1362
RIGHTP1	MALE	2	6.9500	7.071E-02	5.000E-02
	FEMALE	7	6.5714	.3638	.1375

a COUNTRY = GERMANY

Table A-38. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	3.322	.118	.074	6	.943	4.000E-02	.5376	-1.2756	1.3556
	Equal variances not assumed			.062	2.623	.955	4.000E-02	.6439	-2.1866	2.2666
RIGHTM2	Equal variances assumed	.205	.660	1.322	10	.216	.4875	.3689	-.3344	1.3094

		Levene's Test for Equality of Variances		t-test for Equality of Means						
	Equal variances not assumed			1.210	4.929	.281	.4875	.4029	-.5528	1.5278
RIGHTM1	Equal variances assumed	.855	.379	2.073	9	.068	.7792	.3760	-7.1298E-02	1.6296
	Equal variances not assumed			3.046	8.874	.014	.7792	.2558	.1993	1.3591
RIGHTP2	Equal variances assumed	.363	.561	3.282	9	.010	.8375	.2552	.2602	1.4148
	Equal variances not assumed			3.461	4.037	.025	.8375	.2420	.1681	1.5069
RIGHTP1	Equal variances assumed	3.033	.125	1.397	7	.205	.3786	.2709	-.2621	1.0192
	Equal variances not assumed			2.587	6.961	.036	.3786	.1463	3.217E-02	.7250

a COUNTRY = GERMANY

Portugal

Table A-39. Group Statistics

	SEX	N	Mean	Std. Deviation	Std. Error Mean
RIGHTM3	MALE	20	8.9400	.7917	.1770
	FEMALE	8	8.9375	.3583	.1267
RIGHTM2	MALE	27	10.0741	.5318	.1023
	FEMALE	11	9.7091	.6426	.1937
RIGHTM1	MALE	24	10.4500	.4700	9.593E-02
	FEMALE	14	10.0643	.5982	.1599
RIGHTP2	MALE	25	6.6840	.6811	.1362
	FEMALE	11	6.3455	.2659	8.019E-02
RIGHTP1	MALE	27	6.9704	.4131	7.950E-02
	FEMALE	9	7.0222	.2949	9.829E-02

a COUNTRY = PORTUGAL

Table A-40. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
RIGHTM3	Equal variances assumed	2.925	.099	.009	26	.993	2.500E-03	.2936	-.6010	.6060
	Equal variances not assumed			.011	25.378	.991	2.500E-03	.2177	-.4455	.4505
RIGHTM2	Equal variances assumed	1.169	.287	1.807	36	.079	.3650	.2020	-4.4692E-02	.7747
	Equal variances not assumed			1.666	15.883	.115	.3650	.2191	-9.9791E-02	.8298
RIGHTM1	Equal variances assumed	.845	.364	2.206	36	.034	.3857	.1749	3.109E-02	.7403
	Equal variances not assumed			2.069	22.405	.050	.3857	.1865	-5.5788E-04	.7720
RIGHTP2	Equal variances assumed	1.453	.236	1.586	34	.122	.3385	.2135	-9.5378E-02	.7725
	Equal variances not assumed			2.142	33.780	.040	.3385	.1581	1.723E-02	.6599

		Levene's Test for Equality of Variances		t-test for Equality of Means						
RIGHTP1	Equal variances assumed	2.218	.146	-.347	34	.731	-5.1852E-02	.1495	-.3557	.2520
	Equal variances not assumed			-.410	19.343	.686	-5.1852E-02	.1264	-.3161	.2124

a COUNTRY = PORTUGAL

8.0 APPENDIX B - NORMALITY AND SKEWNESS

MDBL - TESTS FOR NORMAL DISTRIBUTION

Right P1

Table B-1. Case Processing Summary

		Cases					
		Valid		Missing		Total	
	COUNTRY	N	Percent	N	Percent	N	Percent
RIGHTP1	RUSSIA	15	40.5%	22	59.5%	37	100.0%
	DENMARK/ SWEDEN	17	47.2%	19	52.8%	36	100.0%
	FRANCE	13	86.7%	2	13.3%	15	100.0%
	GERMANY	9	37.5%	15	62.5%	24	100.0%
	PORTUGAL	63	36.0%	112	64.0%	175	100.0%

Table B-2. Descriptives

			RIGHTP1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	7.6413	7.9765	7.9077	7.7222	7.9460
		Std. Error	.1476	.1468	.1361	.1535	6.121E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	7.3247	7.6652	7.6112	7.3683	7.8237
	Upper Bound	Statistic	7.9580	8.2878	8.2042	8.0761	8.0684
5% Trimmed Mean		Statistic	7.6376	7.9766	7.8808	7.7080	7.9368
Median		Statistic	7.7200	7.8500	7.9000	7.8000	7.9000
Variance		Statistic	.327	.367	.241	.212	.236
Std. Deviation		Statistic	.5718	.6055	.4907	.4604	.4859
Minimum		Statistic	6.76	6.70	7.20	7.10	6.70
Maximum		Statistic	8.59	9.25	9.10	8.60	9.70
Range		Statistic	1.83	2.55	1.90	1.50	3.00
Interquartile Range		Statistic	.8000	.7750	.5500	.7000	.6000
Skewness		Statistic	.156	.114	.961	.538	.492
		Std. Error	.580	.550	.616	.717	.302
Kurtosis		Statistic	-.834	.549	1.988	.314	1.758
		Std. Error	1.121	1.063	1.191	1.400	.595

Table B-3. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHT P1	RUSSIA	.103	15	.200*	.961	15	.675
	DENMARK/ SWEDEN	.112	17	.200*	.981	17	.946
	FRANCE	.195	13	.191	.927	13	.374
	GERMANY	.162	9	.200*	.948	9	.640
	PORTUGAL	.110	63	.055			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right P2

Table B-4. Case Processing Summary

		Cases					
		Valid		Missing		Total	
	COUNTRY	N	Percent	N	Percent	N	Percent
RIGHTP2	RUSSIA	19	51.4%	18	48.6%	37	100.0%
	DENMARK/ SWEDEN	15	41.7%	21	58.3%	36	100.0%
	FRANCE	13	86.7%	2	13.3%	15	100.0%
	GERMANY	13	54.2%	11	45.8%	24	100.0%
	PORTUGAL	62	35.4%	113	64.6%	175	100.0%

Table B-5. Descriptives

			RIGHTP2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	8.0568	8.5000	8.8308	8.3308	8.3290
		Std. Error	.1401	.1687	8.037E-02	.1327	6.112E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	7.7625	8.1381	8.6557	8.0416	8.2068
	Upper Bound	Statistic	8.3512	8.8619	9.0059	8.6199	8.4512
5% Trimmed Mean		Statistic	8.0087	8.4806	8.8175	8.3675	8.3285
Median		Statistic	8.0500	8.6000	8.7000	8.4000	8.3000
Variance		Statistic	.373	.427	8.397E-02	.229	.232
Std. Deviation		Statistic	.6108	.6536	.2898	.4785	.4813
Minimum		Statistic	7.13	7.30	8.50	7.10	7.30
Maximum		Statistic	9.85	10.05	9.40	8.90	9.40
Range		Statistic	2.72	2.75	.90	1.80	2.10
Interquartile Range		Statistic	.6500	.8500	.4000	.5500	.7000

			RIGHTP2				
Skewness		Statistic	1.278	.508	.877	-1.352	.132
		Std. Error	.524	.580	.616	.616	.304
Kurtosis		Statistic	3.062	1.306	-.255	2.912	-.577
		Std. Error	1.014	1.121	1.191	1.191	.599

Table B-6. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTP2	RUSSIA	.135	19	.200*	.916	19	.098
	DENMARK/ SWEDEN	.137	15	.200*	.960	15	.659
	FRANCE	.289	13	.004	.882	13	.085
	GERMANY	.250	13	.026	.862	13	.046
	PORTUGAL	.086	62	.200*			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M1

Table B-7. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM1	RUSSIA	12	32.4%	25	67.6%	37	100.0%
	DENMARK/ SWEDEN	18	50.0%	18	50.0%	36	100.0%
	FRANCE	13	86.7%	2	13.3%	15	100.0%
	GERMANY	16	66.7%	8	33.3%	24	100.0%
	PORTUGAL	90	51.4%	85	48.6%	175	100.0%

Table B-8. Descriptives

			RIGHTM1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	10.2692	10.8056	11.2769	11.0000	10.8422
		Std. Error	.1335	.1506	.1424	.1118	7.366E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	9.9754	10.4878	10.9667	10.7617	10.6959
	Upper Bound	Statistic	10.5630	11.1233	11.5872	11.2383	10.9886
5% Trimmed Mean		Statistic	10.2424	10.8284	11.3077	10.9833	10.8821
Median		Statistic	10.1450	10.8000	11.4000	10.9500	11.0000
Variance		Statistic	.214	.408	.264	.200	.488

			RIGHTM1				
Std. Deviation		Statistic	.4624	.6389	.5134	.4472	.6988
Minimum		Statistic	9.78	9.50	10.00	10.30	7.00
Maximum		Statistic	11.24	11.70	12.00	12.00	12.50
Range		Statistic	1.46	2.20	2.00	1.70	5.50
Interquartile Range		Statistic	.6675	1.1000	.6500	.2750	.7250
Skewness		Statistic	.905	-.291	-1.174	1.032	-1.928
		Std. Error	.637	.536	.616	.564	.254
Kurtosis		Statistic	.053	-.724	2.271	.879	9.531
		Std. Error	1.232	1.038	1.191	1.091	.503

Table B-9. Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	COUNTRY	Statistic	df	Sig.	Statistic	df	Sig.
RIGHTM1	RUSSIA	.220	12	.114	.903	12	.232
	DENMARK/ SWEDEN	.114	18	.200*	.958	18	.529
	FRANCE	.134	13	.200*	.922	13	.339
	GERMANY	.313	16	.000	.876	16	.036
	PORTUGAL	.109	90	.010			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M2

Table B-10. Case Processing Summary

		Cases					
		Valid		Missing		Total	
	COUNTRY	N	Percent	N	Percent	N	Percent
RIGHTM2	RUSSIA	14	37.8%	23	62.2%	37	100.0%
	DENMARK/ SWEDEN	19	52.8%	17	47.2%	36	100.0%
	FRANCE	15	100.0%	0	.0%	15	100.0%
	GERMANY	14	58.3%	10	41.7%	24	100.0%
	PORTUGAL	79	45.1%	96	54.9%	175	100.0%

Table B-11. Descriptives

			RIGHTM2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	10.0579	10.4789	10.8667	10.5357	10.4861
		Std. Error	.1886	.1513	.1416	.1496	7.230E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	9.6504	10.1611	10.5629	10.2126	10.3421

			RIGHTM2				
	Upper Bound	Statistic	10.4653	10.7968	11.1705	10.8589	10.6300
5% Trimmed Mean		Statistic	10.0176	10.5099	10.8741	10.5119	10.4900
Median		Statistic	10.1200	10.6000	10.8000	10.4000	10.5000
Variance		Statistic	.498	.435	.301	.313	.413
Std. Deviation		Statistic	.7057	.6594	.5486	.5597	.6427
Minimum		Statistic	9.23	9.00	9.90	9.80	8.90
Maximum		Statistic	11.61	11.40	11.70	11.70	12.20
Range		Statistic	2.38	2.40	1.80	1.90	3.30
Interquartile Range		Statistic	.9625	1.0000	1.0000	1.0250	.9000
Skewness		Statistic	.770	-.381	-.073	.624	-.043
		Std. Error	.597	.524	.580	.597	.271
Kurtosis		Statistic	.370	-.367	-.794	-.410	-.048
		Std. Error	1.154	1.014	1.121	1.154	.535

Table B-12. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM2	RUSSIA	.163	14	.200*	.907	14	.193
	DENMARK/ SWEDEN	.108	19	.200*	.956	19	.488
	FRANCE	.143	15	.200*	.955	15	.573
	GERMANY	.168	14	.200*	.933	14	.395
	PORTUGAL	.092	79	.096			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M3

Table B-13. Case Processing Summary

	COUNTRY	Cases Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM3	RUSSIA	18	48.6%	19	51.4%	37	100.0%
	DENMARK/ SWEDEN	18	50.0%	18	50.0%	36	100.0%
	FRANCE	14	93.3%	1	6.7%	15	100.0%
	GERMANY	11	45.8%	13	54.2%	24	100.0%
	PORTUGAL	42	24.0%	133	76.0%	175	100.0%

Table B-14. Descriptives

			RIGHTM3				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
			RIGHTM3	RIGHTM3	RIGHTM3	RIGHTM3	RIGHTM3
Mean		Statistic	9.7956	10.1500	10.6429	10.1273	10.2048
		Std. Error	.1998	.1813	.1370	.2132	.1231
95% Confidence Interval for Mean	Lower Bound	Statistic	9.3740	9.7675	10.3470	9.6521	9.9561
	Upper Bound	Statistic	10.2171	10.5325	10.9388	10.6024	10.4534
5% Trimmed Mean		Statistic	9.7873	10.1556	10.6310	10.1247	10.1942
Median		Statistic	9.5300	10.4000	10.4500	10.0000	10.0500
Variance		Statistic	.719	.591	.263	.500	.637
Std. Deviation		Statistic	.8477	.7691	.5125	.7072	.7978
Minimum		Statistic	8.37	9.00	9.80	9.00	8.50
Maximum		Statistic	11.37	11.20	11.70	11.30	12.10
Range		Statistic	3.00	2.20	1.90	2.30	3.60
Interquartile Range		Statistic	1.4550	1.5625	.7750	.8000	1.0500
Skewness		Statistic	.227	-.348	.507	-.267	.354
		Std. Error	.536	.536	.597	.661	.365
Kurtosis		Statistic	-.976	-1.491	-.150	-.181	-.076
		Std. Error	1.038	1.038	1.154	1.279	.717

Table B-15. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM3	RUSSIA	.158	18	.200*	.956	18	.498
	DENMARK/ SWEDEN	.188	18	.091	.891	18	.042
	FRANCE	.182	14	.200*	.950	14	.536
	GERMANY	.156	11	.200*	.944	11	.554
	PORTUGAL	.125	42	.097	.971	42	.472

* This is a lower bound of the true significance.

a Lilliefors Significance Correction

MDMD - TESTS FOR NORMAL DISTRIBUTION

Right P1

Table B-16. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTP1	RUSSIA	15	40.5%	22	59.5%	37	100.0%
	DENMARK/ SWEDEN	20	50.0%	20	50.0%	40	100.0%
	FRANCE	11	84.6%	2	15.4%	13	100.0%
	GERMANY	9	36.0%	16	64.0%	25	100.0%
	PORTUGAL	66	39.1%	103	60.9%	169	100.0%

Table B-17. Descriptives

			RIGHTP1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	6.6980	7.0000	6.8000	7.2000	6.8803
		Std. Error	.1557	9.032E-02	.1433	8.819E-02	4.986E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	6.3641	6.8110	6.4806	6.9966	6.7807
	Upper Bound	Statistic	7.0319	7.1890	7.1194	7.4034	6.9799
5% Trimmed Mean		Statistic	6.7078	7.0222	6.8222	7.1889	6.8825
Median		Statistic	6.6000	7.0500	6.8000	7.2000	6.9000
Variance		Statistic	.364	.163	.226	7.000E-02	.164
Std. Deviation		Statistic	.6030	.4039	.4754	.2646	.4051
Minimum		Statistic	5.49	6.10	5.70	6.90	5.90
Maximum		Statistic	7.73	7.50	7.50	7.70	8.10
Range		Statistic	2.24	1.40	1.80	.80	2.20
Interquartile Range		Statistic	.7300	.4375	.6000	.4000	.5000
Skewness		Statistic	-.085	-1.036	-.949	.781	.056
		Std. Error	.580	.512	.661	.717	.295
Kurtosis		Statistic	.099	.249	2.302	.261	.786
		Std. Error	1.121	.992	1.279	1.400	.582

Table B-18. Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	COUNTRY	Statistic	df	Sig.	Statistic	df	Sig.
RIGHTP1	RUSSIA	.151	15	.200*	.970	15	.813
	DENMARK/ SWEDEN	.200	20	.035	.881	20	.018

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	FRANCE	.173	11	.200*	.911	11	.320
	GERMANY	.278	9	.044	.888	9	.254
	PORTUGAL	.096	66	.200*			

*' This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right P2

Table B-19. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTP2	RUSSIA	19	51.4%	18	48.6%	37	100.0%
	DENMARK/ SWEDEN	17	42.5%	23	57.5%	40	100.0%
	FRANCE	12	92.3%	1	7.7%	13	100.0%
	GERMANY	12	48.0%	13	52.0%	25	100.0%
	PORTUGAL	64	37.9%	105	62.1%	169	100.0%

Table B-20. Descriptives

			RIGHTP2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	6.8905	7.1471	6.9333	6.8333	6.7938
		Std. Error	.2022	.1009	.1117	.1519	4.797E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	6.4656	6.9332	6.6875	6.4990	6.6979
	Upper Bound	Statistic	7.3154	7.3609	7.1792	7.1677	6.8896
5% Trimmed Mean		Statistic	6.7973	7.1412	6.9148	6.8370	6.7913
Median		Statistic	6.8200	7.1000	6.9000	6.9000	6.8000
Variance		Statistic	.777	.173	.150	.277	.147
Std. Deviation		Statistic	.8816	.4159	.3869	.5263	.3837
Minimum		Statistic	5.63	6.40	6.40	5.90	5.80
Maximum		Statistic	9.83	8.00	7.80	7.70	7.90
Range		Statistic	4.20	1.60	1.40	1.80	2.10
Interquartile Range		Statistic	.9200	.6250	.5750	.6750	.5000
Skewness		Statistic	2.036	.220	.894	-.468	.046
		Std. Error	.524	.550	.637	.637	.299
Kurtosis		Statistic	6.563	-.178	1.096	-.119	.443
		Std. Error	1.014	1.063	1.232	1.232	.590

Table B-21. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTP2	RUSSIA	.168	19	.166	.825	19	.010
	DENMARK/ SWEDEN	.092	17	.200*	.984	17	.976
	FRANCE	.201	12	.195	.929	12	.409
	GERMANY	.217	12	.124	.944	12	.514
	PORTUGAL	.116	64	.033			

** This is an upper bound of the true significance.
* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M1

Table B-22. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM1	RUSSIA	15	40.5%	22	59.5%	37	100.0%
	DENMARK/ SWEDEN	19	47.5%	21	52.5%	40	100.0%
	FRANCE	13	100.0%	0	.0%	13	100.0%
	GERMANY	19	76.0%	6	24.0%	25	100.0%
	PORTUGAL	90	53.3%	79	46.7%	169	100.0%

Table B-23. Descriptives

			RIGHTM1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	10.7793	11.1947	10.9615	11.2053	11.1622
		Std. Error	.1614	.1598	.1623	.1096	7.080E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	10.4331	10.8591	10.6079	10.9750	11.0215
	Upper Bound	Statistic	11.1256	11.5304	11.3152	11.4356	11.3029
5% Trimmed Mean		Statistic	10.7409	11.1886	10.9406	11.1947	11.1914
Median		Statistic	10.9300	11.1000	11.2000	11.1000	11.3000
Variance		Statistic	.391	.485	.343	.228	.451
Std. Deviation		Statistic	.6252	.6964	.5853	.4778	.6717
Minimum		Statistic	9.98	10.05	10.20	10.40	8.10
Maximum		Statistic	12.27	12.45	12.10	12.20	12.50
Range		Statistic	2.29	2.40	1.90	1.80	4.40
Interquartile Range		Statistic	.8800	1.2000	.9000	.8000	.9000

			RIGHTM1				
Skewness		Statistic	.697	.203	.249	.633	-1.162
		Std. Error	.580	.524	.616	.524	.254
Kurtosis		Statistic	.757	-1.122	-.697	-.189	3.659
		Std. Error	1.121	1.014	1.191	1.014	.503

Table B-24. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM1	RUSSIA	.129	15	.200*	.929	15	.325
	DENMARK/ SWEDEN	.182	19	.096	.948	19	.409
	FRANCE	.197	13	.180	.922	13	.334
	GERMANY	.219	19	.017	.937	19	.300
	PORTUGAL	.100	90	.026			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M2

Table B-25. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM2	RUSSIA	19	51.4%	18	48.6%	37	100.0%
	DENMARK/ SWEDEN	20	50.0%	20	50.0%	40	100.0%
	FRANCE	12	92.3%	1	7.7%	13	100.0%
	GERMANY	12	48.0%	13	52.0%	25	100.0%
	PORTUGAL	79	46.7%	90	53.3%	169	100.0%

Table B-26. Descriptives

			RIGHTM2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	10.4468	10.8125	10.6167	10.4417	10.7291
		Std. Error	.1757	.1434	.1604	.1663	7.950E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	10.0777	10.5125	10.2636	10.0757	10.5708
	Upper Bound	Statistic	10.8159	11.1125	10.9697	10.8076	10.8874
5% Trimmed Mean		Statistic	10.4126	10.8417	10.6074	10.4019	10.7143
Median		Statistic	10.2700	10.7750	10.5000	10.5000	10.7000
Variance		Statistic	.586	.411	.309	.332	.499

			RIGHTM2				
Std. Deviation		Statistic	.7658	.6411	.5557	.5760	.7066
Minimum		Statistic	9.47	9.10	9.80	9.80	9.30
Maximum		Statistic	12.04	12.00	11.60	11.80	12.30
Range		Statistic	2.57	2.90	1.80	2.00	3.00
Interquartile Range		Statistic	1.3200	.8000	.9500	.7500	.9000
Skewness		Statistic	.625	-.569	.263	1.033	.169
		Std. Error	.524	.512	.637	.637	.271
Kurtosis		Statistic	-.664	1.614	-.980	1.765	-.261
		Std. Error	1.014	.992	1.232	1.232	.535

Table B-27. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM2	RUSSIA	.135	19	.200*	.933	19	.256
	DENMARK/ SWEDEN	.120	20	.200*	.958	20	.489
	FRANCE	.166	12	.200*	.958	12	.699
	GERMANY	.225	12	.095	.874	12	.080
	PORTUGAL	.075	79	.200*			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M3

Table B-28. Case Processing Summary

		Cases					
		Valid		Missing		Total	
	COUNTRY	N	Percent	N	Percent	N	Percent
RIGHTM3	RUSSIA	18	48.6%	19	51.4%	37	100.0%
	DENMARK/ SWEDEN	22	55.0%	18	45.0%	40	100.0%
	FRANCE	11	84.6%	2	15.4%	13	100.0%
	GERMANY	10	40.0%	15	60.0%	25	100.0%
	PORTUGAL	42	24.9%	127	75.1%	169	100.0%

Table B-29. Descriptives

			RIGHTM3				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	10.5228	11.0136	10.8909	10.4900	10.6500
		Std. Error	.2142	.1771	.1984	.1303	.1036
95% Confidence Interval for Mean	Lower Bound	Statistic	10.0709	10.6453	10.4489	10.1951	10.4408

			RIGHTM3				
	Upper Bound	Statistic	10.9746	11.3819	11.3329	10.7849	10.8592
5% Trimmed Mean		Statistic	10.5203	11.0217	10.8788	10.4944	10.6481
Median		Statistic	10.6550	11.1000	10.8000	10.5500	10.7500
Variance		Statistic	.826	.690	.433	.170	.451
Std. Deviation		Statistic	.9087	.8307	.6580	.4122	.6715
Minimum		Statistic	8.88	9.40	10.00	9.80	9.20
Maximum		Statistic	12.21	12.50	12.00	11.10	12.10
Range		Statistic	3.33	3.10	2.00	1.30	2.90
Interquartile Range		Statistic	1.3450	1.0500	1.1000	.7500	1.0250
Skewness		Statistic	.054	-.366	.236	-.351	-.065
		Std. Error	.536	.491	.661	.687	.365
Kurtosis		Statistic	-.415	-.430	-.897	-.682	-.451
		Std. Error	1.038	.953	1.279	1.334	.717

Table B-30. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM3	RUSSIA	.110	18	.200*	.977	18	.885
	DENMARK/ SWEDEN	.132	22	.200*	.969	22	.663
	FRANCE	.132	11	.200*	.952	11	.650
	GERMANY	.210	10	.200*	.956	10	.716
	PORTUGAL	.088	42	.200*	.980	42	.741

* This is a lower bound of the true significance.

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Right P1

Table B-31. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTP1	RUSSIA	6	16.2%	31	83.8%	37	100.0%
	DENMARK/ SWEDEN	16	42.1%	22	57.9%	38	100.0%
	FRANCE	10	76.9%	3	23.1%	13	100.0%
	GERMANY	10	58.8%	7	41.2%	17	100.0%
	PORTUGAL	50	35.0%	93	65.0%	143	100.0%

Table B-32. Descriptives

			RIGHTP1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	9.1667	9.3813	9.4100	9.1900	9.4660
		Std. Error	.3185	.1525	.1080	.1140	7.859E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	8.3479	9.0563	9.1658	8.9322	9.3081
	Upper Bound	Statistic	9.9854	9.7062	9.6542	9.4478	9.6239
5% Trimmed Mean		Statistic	9.1641	9.3958	9.4167	9.2000	9.4856
Median		Statistic	9.1600	9.5000	9.4500	9.1000	9.6000
Variance		Statistic	.609	.372	.117	.130	.309
Std. Deviation		Statistic	.7802	.6099	.3414	.3604	.5557
Minimum		Statistic	8.13	8.20	8.80	8.50	7.80
Maximum		Statistic	10.25	10.30	9.90	9.70	10.60
Range		Statistic	2.12	2.10	1.10	1.20	2.80
Interquartile Range		Statistic	1.4750	.9750	.5500	.5250	.6250
Skewness		Statistic	.074	-.519	-.462	-.326	-.699
		Std. Error	.845	.564	.687	.687	.337
Kurtosis		Statistic	-.868	-.593	-.452	.031	.924
		Std. Error	1.741	1.091	1.334	1.334	.662

Table B-33. Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	COUNTRY	Statistic	df	Sig.	Statistic	df	Sig.
RIGHTP1	RUSSIA	.160	6	.200*	.966	6	.828
	DENMARK/ SWEDEN	.140	16	.200*	.957	16	.589

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	FRANCE	.111	10	.200*	.973	10	.906
	GERMANY	.199	10	.200*	.929	10	.449
	PORTUGAL	.136	50	.021	.959	50	.193

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right P2

Table B-34. Case Processing Summary

		Cases					
		Valid		Missing		Total	
	COUNTRY	N	Percent	N	Percent	N	Percent
RIGHTP2	RUSSIA	8	21.6%	29	78.4%	37	100.0%
	DENMARK/ SWEDEN	17	44.7%	21	55.3%	38	100.0%
	FRANCE	11	84.6%	2	15.4%	13	100.0%
	GERMANY	12	70.6%	5	29.4%	17	100.0%
	PORTUGAL	52	36.4%	91	63.6%	143	100.0%

Table B-35. Descriptives

			RIGHTP2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	9.0825	9.3559	9.7636	9.3250	9.5058
		Std. Error	.1880	.1482	.2309	.1060	7.442E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	8.6379	9.0417	9.2491	9.0917	9.3564
	Upper Bound	Statistic	9.5271	9.6701	10.2781	9.5583	9.6552
5% Trimmed Mean		Statistic	9.0850	9.3510	9.7207	9.3222	9.5162
Median		Statistic	9.2700	9.4000	9.7000	9.3000	9.5000
Variance		Statistic	.283	.373	.587	.135	.288
Std. Deviation		Statistic	.5319	.6111	.7659	.3671	.5367
Minimum		Statistic	8.44	8.30	8.60	8.90	8.00
Maximum		Statistic	9.68	10.50	11.70	9.80	10.80
Range		Statistic	1.24	2.20	3.10	.90	2.80
Interquartile Range		Statistic	1.0600	.9250	.4000	.7500	.6000
Skewness		Statistic	-.391	.032	1.430	.198	-.192
		Std. Error	.752	.550	.661	.637	.330
Kurtosis		Statistic	-2.104	-.509	4.487	-1.792	.641
		Std. Error	1.481	1.063	1.279	1.232	.650

Table B-36. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTP2	RUSSIA	.242	8	.185	.825	8	.061
	DENMARK/ SWEDEN	.127	17	.200*	.973	17	.827
	FRANCE	.288	11	.011	.809	11	.017
	GERMANY	.229	12	.083	.863	12	.059
	PORTUGAL	.072	52	.200*			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M1

Table B-37. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM1	RUSSIA	11	29.7%	26	70.3%	37	100.0%
	DENMARK/ SWEDEN	22	57.9%	16	42.1%	38	100.0%
	FRANCE	12	92.3%	1	7.7%	13	100.0%
	GERMANY	11	64.7%	6	35.3%	17	100.0%
	PORTUGAL	65	45.5%	78	54.5%	143	100.0%

Table B-38. Descriptives

			RIGHTM1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	10.8200	11.7750	12.1583	11.8273	11.9892
		Std. Error	.1401	.1297	.1621	.1389	7.044E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	10.5079	11.5053	11.8015	11.5178	11.8485
	Upper Bound	Statistic	11.1321	12.0447	12.5151	12.1367	12.1300
5% Trimmed Mean		Statistic	10.8222	11.7540	12.1426	11.8136	12.0154
Median		Statistic	10.6900	11.6500	12.1000	11.9000	12.1000
Variance		Statistic	.216	.370	.315	.212	.323
Std. Deviation		Statistic	.4646	.6082	.5616	.4606	.5679
Minimum		Statistic	10.09	10.85	11.40	11.10	10.20
Maximum		Statistic	11.51	13.10	13.20	12.80	13.00
Range		Statistic	1.42	2.25	1.80	1.70	2.80
Interquartile Range		Statistic	.9500	1.0500	.8000	.6000	.8000
Skewness		Statistic	.385	.457	.523	.432	-.701

			RIGHTM1				
		Std. Error	.661	.491	.637	.661	.297
Kurtosis		Statistic	-.754	-.661	-.355	1.103	.554
		Std. Error	1.279	.953	1.232	1.279	.586

Table B-39. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM1	RUSSIA	.210	11	.189	.912	11	.326
	DENMARK/ SWEDEN	.129	22	.200*	.955	22	.428
	FRANCE	.111	12	.200*	.954	12	.651
	GERMANY	.186	11	.200*	.935	11	.466
	PORTUGAL	.123	65	.016			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M2

Table B-40. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM2	RUSSIA	10	27.0%	27	73.0%	37	100.0%
	DENMARK/ SWEDEN	18	47.4%	20	52.6%	38	100.0%
	FRANCE	12	92.3%	1	7.7%	13	100.0%
	GERMANY	12	70.6%	5	29.4%	17	100.0%
	PORTUGAL	64	44.8%	79	55.2%	143	100.0%

Table B-41. Descriptives

			RIGHTM2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	11.2230	12.0083	12.3500	11.6417	12.0688
		Std. Error	.1709	.1654	.2224	.1699	8.542E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	10.8364	11.6594	11.8605	11.2678	11.8981
	Upper Bound	Statistic	11.6096	12.3573	12.8395	12.0156	12.2394
5% Trimmed Mean		Statistic	11.2300	12.0093	12.2944	11.6185	12.0868
Median		Statistic	11.3050	12.1000	12.3000	11.5500	12.1000
Variance		Statistic	.292	.492	.594	.346	.467

			RIGHTM2				
Std. Deviation		Statistic	.5404	.7017	.7705	.5885	.6833
Minimum		Statistic	10.42	10.80	11.40	10.80	10.00
Maximum		Statistic	11.90	13.20	14.30	12.90	13.40
Range		Statistic	1.48	2.40	2.90	2.10	3.40
Interquartile Range		Statistic	1.1000	1.2000	.7500	.7500	.9750
Skewness		Statistic	-.532	.014	1.423	.839	-.454
		Std. Error	.687	.536	.637	.637	.299
Kurtosis		Statistic	-1.242	-1.054	3.173	.582	.208
		Std. Error	1.334	1.038	1.232	1.232	.590

Table B-42. Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	COUNTRY	Statistic	df	Sig.	Statistic	df	Sig.
RIGHTM2	RUSSIA	.235	10	.126	.892	10	.233
	DENMARK/ SWEDEN	.121	18	.200*	.959	18	.558
	FRANCE	.206	12	.169	.884	12	.108
	GERMANY	.136	12	.200*	.952	12	.623
	PORTUGAL	.069	64	.200*			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M3

Table B-43. Case Processing Summary

		Cases					
		Valid		Missing		Total	
	COUNTRY	N	Percent	N	Percent	N	Percent
RIGHTM3	RUSSIA	10	27.0%	27	73.0%	37	100.0%
	DENMARK/ SWEDEN	22	57.9%	16	42.1%	38	100.0%
	FRANCE	9	69.2%	4	30.8%	13	100.0%
	GERMANY	8	47.1%	9	52.9%	17	100.0%
	PORTUGAL	40	28.0%	103	72.0%	143	100.0%

Table B-44. Descriptives

			RIGHTM3				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	10.8050	11.0023	11.5556	11.0125	11.7625
		Std. Error	.3642	.2303	.1180	.1575	.1721
95% Confidence Interval for Mean	Lower Bound	Statistic	9.9812	10.5233	11.2835	10.6401	11.4144

			RIGHTM3				
	Upper Bound	Statistic	11.6288	11.4812	11.8276	11.3849	12.1106
5% Trimmed Mean		Statistic	10.7650	10.9654	11.5506	11.0417	11.8444
Median		Statistic	10.7300	10.9750	11.5000	11.1500	11.8500
Variance		Statistic	1.326	1.167	.125	.198	1.184
Std. Deviation		Statistic	1.1516	1.0802	.3539	.4454	1.0883
Minimum		Statistic	9.32	9.30	11.00	10.00	7.60
Maximum		Statistic	13.01	13.40	12.20	11.50	13.50
Range		Statistic	3.69	4.10	1.20	1.50	5.90
Interquartile Range		Statistic	1.8975	1.7125	.5000	.2750	1.3750
Skewness		Statistic	.537	.374	.277	-1.947	-1.459
		Std. Error	.687	.491	.717	.752	.374
Kurtosis		Statistic	-.192	-.298	.403	4.781	4.225
		Std. Error	1.334	.953	1.400	1.481	.733

Table B-45. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM3	RUSSIA	.115	10	.200*	.962	10	.783
	DENMARK/ SWEDEN	.087	22	.200*	.973	22	.750
	FRANCE	.134	9	.200*	.977	9	.939
	GERMANY	.275	8	.075	.782	8	.023
	PORTUGAL	.114	40	.200*	.911	40	.010**

* This is a lower bound of the true significance.
** This is an upper bound of the true significance.
a Lilliefors Significance Correction

MXMD - TESTS FOR NORMAL DISTRIBUTION

Right P1

Table B-46. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTP1	RUSSIA	6	16.2%	31	83.8%	37	100.0%
	DENMARK/ SWEDEN	18	40.9%	26	59.1%	44	100.0%
	FRANCE	8	50.0%	8	50.0%	16	100.0%
	GERMANY	10	55.6%	8	44.4%	18	100.0%
	PORTUGAL	51	35.9%	91	64.1%	142	100.0%

Table B-47. Descriptives

			RIGHTP1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	6.7133	7.0167	6.5625	6.7000	6.9314
		Std. Error	.1461	.1288	.1762	.1155	5.470E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	6.3377	6.7448	6.1458	6.4388	6.8215
	Upper Bound	Statistic	7.0890	7.2885	6.9792	6.9612	7.0412
5% Trimmed Mean		Statistic	6.7204	7.0130	6.5639	6.7167	6.9460
Median		Statistic	6.7850	7.0500	6.7000	6.8000	7.0000
Variance		Statistic	.128	.299	.248	.133	.153
Std. Deviation		Statistic	.3580	.5466	.4984	.3651	.3906
Minimum		Statistic	6.24	5.90	5.80	6.00	6.00
Maximum		Statistic	7.06	8.20	7.30	7.10	7.70
Range		Statistic	.82	2.30	1.50	1.10	1.70
Interquartile Range		Statistic	.7225	.7250	.8000	.5750	.5000
Skewness		Statistic	-.388	-.129	-.266	-.976	-.445
		Std. Error	.845	.536	.752	.687	.333
Kurtosis		Statistic	-2.168	.576	-.687	-.052	-.004
		Std. Error	1.741	1.038	1.481	1.334	.656

Table B-48. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTP1	RUSSIA	.237	6	.200*	.854	6	.212
	DENMARK/ SWEDEN	.130	18	.200*	.976	18	.857
	FRANCE	.183	8	.200*	.959	8	.771
	GERMANY	.208	10	.200*	.893	10	.237
	PORTUGAL	.113	51	.099			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right P2

Table B-49. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTP2	RUSSIA	8	21.6%	29	78.4%	37	100.0%

		Cases					
	DENMARK/ SWEDEN	19	43.2%	25	56.8%	44	100.0%
	FRANCE	9	56.3%	7	43.8%	16	100.0%
	GERMANY	12	66.7%	6	33.3%	18	100.0%
	PORTUGAL	55	38.7%	87	61.3%	142	100.0%

Table B-50. Descriptives

			RIGHTP2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	6.3575	6.7237	6.5111	6.4500	6.6218
		Std. Error	.1820	8.663E-02	.1783	.1515	9.239E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	5.9273	6.5417	6.1000	6.1165	6.4366
	Upper Bound	Statistic	6.7877	6.9057	6.9223	6.7835	6.8071
5% Trimmed Mean		Statistic	6.3689	6.7263	6.4901	6.4278	6.5359
Median		Statistic	6.5500	6.7000	6.4000	6.3000	6.5000
Variance		Statistic	.265	.143	.286	.275	.470
Std. Deviation		Statistic	.5146	.3776	.5349	.5248	.6852
Minimum		Statistic	5.56	6.05	5.80	5.80	5.50
Maximum		Statistic	6.95	7.35	7.60	7.50	9.60
Range		Statistic	1.39	1.30	1.80	1.70	4.10
Interquartile Range		Statistic	.9325	.6000	.7000	.8750	.5000
Skewness		Statistic	-.485	.146	.992	.598	2.901
		Std. Error	.752	.524	.717	.637	.322
Kurtosis		Statistic	-1.432	-.832	1.188	-.588	11.081
		Std. Error	1.481	1.014	1.400	1.232	.634

Table B-51. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTP2	RUSSIA	.234	8	.200*	.900	8	.341
	DENMARK/ SWEDEN	.107	19	.200*	.959	19	.541
	FRANCE	.175	9	.200*	.942	9	.580
	GERMANY	.248	12	.041	.895	12	.180
	PORTUGAL	.200	55	.000			

* This is a lower bound of the true significance.

a Lilliefors Significance Correction

Right M1

Table B-52. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM1	RUSSIA	11	29.7%	26	70.3%	37	100.0%
	DENMARK/ SWEDEN	23	52.3%	21	47.7%	44	100.0%
	FRANCE	14	87.5%	2	12.5%	16	100.0%
	GERMANY	13	72.2%	5	27.8%	18	100.0%
	PORTUGAL	65	45.8%	77	54.2%	142	100.0%

Table B-53. Descriptives

			RIGHTM1				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	9.8245	10.6804	10.2429	10.5923	10.4262
		Std. Error	.3539	.1301	.1504	.1752	6.652E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	9.0361	10.4106	9.9180	10.2105	10.2933
	Upper Bound	Statistic	10.6130	10.9502	10.5677	10.9741	10.5590
5% Trimmed Mean		Statistic	9.9334	10.6775	10.2310	10.6415	10.4449
Median		Statistic	10.1900	10.5000	10.0500	10.7000	10.5000
Variance		Statistic	1.378	.389	.316	.399	.288
Std. Deviation		Statistic	1.1737	.6239	.5626	.6317	.5363
Minimum		Statistic	6.60	9.60	9.30	9.00	9.10
Maximum		Statistic	11.09	11.80	11.40	11.30	11.40
Range		Statistic	4.49	2.20	2.10	2.30	2.30
Interquartile Range		Statistic	.6200	.9000	.6750	.9000	.8500
Skewness		Statistic	-2.290	.188	.425	-1.312	-.406
		Std. Error	.661	.481	.597	.616	.297
Kurtosis		Statistic	6.636	-.915	.185	2.291	-.299
		Std. Error	1.279	.935	1.154	1.191	.586

Table B-54. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM1	RUSSIA	.303	11	.006	.733	11	.010**
	DENMARK/ SWEDEN	.136	23	.200*	.960	23	.480
	FRANCE	.190	14	.183	.943	14	.470
	GERMANY	.134	13	.200*	.894	13	.133

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	PORTUGAL	.124	65	.015			

** This is an upper bound of the true significance.
* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M2

Table B-55. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM2	RUSSIA	10	27.0%	27	73.0%	37	100.0%
	DENMARK/ SWEDEN	22	50.0%	22	50.0%	44	100.0%
	FRANCE	16	100.0%	0	.0%	16	100.0%
	GERMANY	13	72.2%	5	27.8%	18	100.0%
	PORTUGAL	65	45.8%	77	54.2%	142	100.0%

Table B-56. Descriptives

			RIGHTM2				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	9.5720	10.0773	9.6938	9.2154	9.9538
		Std. Error	.1867	.1685	.2326	.1656	7.433E-02
95% Confidence Interval for Mean	Lower Bound	Statistic	9.1498	9.7268	9.1979	8.8546	9.8054
	Upper Bound	Statistic	9.9942	10.4278	10.1896	9.5761	10.1023
5% Trimmed Mean		Statistic	9.5750	10.0939	9.7097	9.2393	9.9483
Median		Statistic	9.4000	10.0500	9.5500	9.4000	10.0000
Variance		Statistic	.348	.625	.866	.356	.359
Std. Deviation		Statistic	.5903	.7905	.9306	.5970	.5992
Minimum		Statistic	8.63	8.40	8.10	8.00	8.70
Maximum		Statistic	10.46	11.45	11.00	10.00	11.40
Range		Statistic	1.83	3.05	2.90	2.00	2.70
Interquartile Range		Statistic	.8875	.9000	1.5250	.9500	.7500
Skewness		Statistic	.171	-.307	-.053	-.560	.068
		Std. Error	.687	.491	.564	.616	.297
Kurtosis		Statistic	-.816	.237	-.850	-.330	-.185
		Std. Error	1.334	.953	1.091	1.191	.586

Table B-57. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM2	RUSSIA	.178	10	.200*	.954	10	.688
	DENMARK/ SWEDEN	.091	22	.200*	.968	22	.639
	FRANCE	.133	16	.200*	.934	16	.342
	GERMANY	.160	13	.200*	.957	13	.664
	PORTUGAL	.115	65	.032			

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

Right M3

Table B-58. Case Processing Summary

		Cases					
	COUNTRY	Valid N	Percent	Missing N	Percent	Total N	Percent
RIGHTM3	RUSSIA	11	29.7%	26	70.3%	37	100.0%
	DENMARK/ SWEDEN	24	54.5%	20	45.5%	44	100.0%
	FRANCE	12	75.0%	4	25.0%	16	100.0%
	GERMANY	9	50.0%	9	50.0%	18	100.0%
	PORTUGAL	40	28.2%	102	71.8%	142	100.0%

Table B-59. Descriptives

			RIGHTM3				
			RUSSIA	DENMARK/ SWEDEN	FRANCE	GERMANY	PORTUGAL
Mean		Statistic	9.0136	9.0083	9.2917	8.3444	8.9825
		Std. Error	.3008	.1694	.1685	.2237	.1106
95% Confidence Interval for Mean	Lower Bound	Statistic	8.3433	8.6578	8.9207	7.8286	8.7588
	Upper Bound	Statistic	9.6839	9.3589	9.6626	8.8602	9.2062
5% Trimmed Mean		Statistic	8.9802	8.9759	9.2685	8.3827	8.9861
Median		Statistic	8.8200	8.8750	9.1500	8.7000	9.0500
Variance		Statistic	.996	.689	.341	.450	.489
Std. Deviation		Statistic	.9978	.8301	.5838	.6710	.6994
Minimum		Statistic	7.86	7.80	8.40	7.10	7.50
Maximum		Statistic	10.77	10.80	10.60	8.90	10.60
Range		Statistic	2.91	3.00	2.20	1.80	3.10
Interquartile Range		Statistic	1.6500	1.1375	.5750	1.1000	.7750
Skewness		Statistic	.634	.789	.821	-1.007	-.239

			RIGHTM3				
		Std. Error	.661	.472	.637	.717	.374
Kurtosis		Statistic	-.813	.081	1.207	-.270	.389
		Std. Error	1.279	.918	1.232	1.400	.733

Table B-60. Tests of Normality

	COUNTRY	Kolmogorov-Smirnov[a] Statistic	df	Sig.	Shapiro-Wilk Statistic	df	Sig.
RIGHTM3	RUSSIA	.192	11	.200*	.922	11	.388
	DENMARK/ SWEDEN	.135	24	.200*	.929	24	.098
	FRANCE	.191	12	.200*	.940	12	.478
	GERMANY	.257	9	.087	.832	9	.056
	PORTUGAL	.103	40	.200*	.966	40	.390

* This is a lower bound of the true significance.
a Lilliefors Significance Correction

8.0 APPENDIX C - LEVENE'S TEST FOR THE HOMOGENEITY OF VARIANCE

Right MDBL - Test of Homogeneity of Variances

Table C-1. RIGHTP1

Levene Statistic	df1	df2	Sig.
.508	4	112	.730

Table C-2. RIGHTP2

Levene Statistic	df1	df2	Sig.
1.528	4	117	.199

Table C-3. RIGHTM1

Levene Statistic	df1	df2	Sig.
.968	4	144	.427

Table C-4. RIGHTM2

Levene Statistic	df1	df2	Sig.
.319	4	136	.865

Table C-5. RIGHTM3

Levene Statistic	df1	df2	Sig.
1.463	4	98	.219

Right MDMD - Test of Homogeneity of Variances

Table C-6. RIGHTP1

Levene Statistic	df1	df2	Sig.
1.520	4	116	.201

Table C-7. RIGHTP2

Levene Statistic	df1	df2	Sig.
2.508	4	119	.046

Table C-8. RIGHTM1

Levene Statistic	df1	df2	Sig.
.863	4	151	.487

Table C-9. RIGHTM2

Levene Statistic	df1	df2	Sig.
.822	4	137	.513

Table C-10. RIGHTM3

Levene Statistic	df1	df2	Sig.
1.844	4	98	.126

Right MXBL - Test of Homogeneity of Variances

Table C-11. RIGHTP1

Levene Statistic	df1	df2	Sig.
1.455	4	87	.223

Table C-12. RIGHTP2

Levene Statistic	df1	df2	Sig.
.391	4	95	.815

Table C-13. RIGHTM1

Levene Statistic	df1	df2	Sig.
.829	4	116	.509

Table C-14. RIGHTM2

Levene Statistic	df1	df2	Sig.
.391	4	111	.815

Table C-15. RIGHTM3

Levene Statistic	df1	df2	Sig.
2.934	4	84	.025

Right MXMD - Test of Homogeneity of Variances

Table C-16. RIGHTP1

Levene Statistic	df1	df2	Sig.
.780	4	88	.541

Table C-17. RIGHTP2

Levene Statistic	df1	df2	Sig.
.274	4	98	.894

Table C-18. RIGHTM1

Levene Statistic	df1	df2	Sig.
1.103	4	121	.358

Table C-19. RIGHTM2

Levene Statistic	df1	df2	Sig.
1.987	4	121	.101

Table C-20. RIGHTM3

Levene Statistic	df1	df2	Sig.
7.895	4	91	.000

8.0 APPENDIX D - ETHICS STATEMENT

Research that will be conducted as part of my Master of Arts degree in the Department of Anthropology at the University of Manitoba involves the analysis of human remains. These consist of dental remains from five regions of Europe: Portugal, France, Germany, Denmark and Sweden, and Russia. The sites from which they were excavated are: Moita do Sebastiao, Cabeco da Arruda, Teviec, Hoedic, Ofnet, Stroby Egede, Vedbaek-Bogebakken, Gongehusvej 7, Skateholm I and II, and Oleni Ostrov. The sites are associated with the Mesolithic cultural period of Europe which spans 10, 000 to 5, 500 years ago. Dental data from Sweden and Denmark were collected by Dr. Verner Alexandersen, data from Russia were collected by Dr. A. M. Haeussler, data from Portugal were collected by Dr. Chris Meiklejohn, and data from France and Germany were taken from Frayer 1978. Those researchers whose unpublished data were used are aware of the research that is being undertaken by myself, and have given permission for it to take place. In addition, these researchers each received a letter signed by myself and Dr. Meiklejohn requesting permission to analyse the data they have provided, and outlining the nature of this research. Any publication or thesis that results from this analysis will include these researchers either as co-authors, or will give recognition to each and will include any sources of funding received by them in the course of collecting this data.

Pamela S. Simpson

8.0 APPENDIX E - RAW DATA - Right MDBL

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
1	1.0	2.0	5773-6	9.33	9.23	9.90	7.73	6.86
2	1.0	2.0	5773-1	.	.	.	.	.
3	1.0	2.0	5773-1	.	.	.	.	.
4	1.0	2.0	5773-2	.	.	9.97	.	.
5	1.0	2.0	5773-2	.	.	.	.	.
6	1.0	2.0	5773-3	9.09	.	.	8.05	.
7	1.0	2.0	5773-3	8.71	9.36	9.80	7.13	.
8	1.0	2.0	5773-4	10.04	10.10	10.29	.	.
9	1.0	2.0	5773-4	8.37	.	.	.	7.45
10	1.0	2.0	5773-5	10.31	10.30	10.49	7.65	7.72
11	1.0	2.0	5773-5	9.12	9.25	9.78	7.47	6.76
12	1.0	2.0	5773-7	9.33	9.45	9.92	7.86	.
13	1.0	2.0	5773-8	.	.	.	8.30	.
14	1.0	2.0	5773-9	.	.	.	.	.
15	1.0	2.0	5773-1	9.05	10.14	.	7.48	7.22
16	1.0	1.0	5773-4	9.45	9.38	10.00	7.38	7.14
17	1.0	1.0	5773-7	11.37	11.61	10.87	8.23	8.34
18	1.0	1.0	5773-8	10.91	11.11	11.24	8.21	7.75
19	1.0	1.0	5773-1	.	10.22	.	7.87	7.94
20	1.0	1.0	5773-2	.	.	.	.	.
21	1.0	1.0	5773-2	.	.	.	.	.
22	1.0	1.0	5773-2	9.61	.	.	8.65	.
23	1.0	1.0	5773-4	.	.	.	.	.
24	1.0	1.0	5773-5	10.74	.	10.60	7.75	.
25	1.0	1.0	5773-7	10.51	.	.	8.09	8.52
26	1.0	1.0	5773-7	.	.	.	.	.
27	1.0	1.0	5773-7	9.30	9.93	10.37	8.24	7.94
28	1.0	1.0	5773-9	.	.	.	.	.
29	1.0	1.0	5773-1	.	.	.	8.71	.
30	1.0	1.0	5773-1	.	.	.	.	.
31	1.0	1.0	5773-1	.	.	.	.	.
32	1.0	1.0	5773-1	.	.	.	.	7.76
33	1.0	1.0	5773-1	10.77	10.42	.	8.43	7.58
34	1.0	1.0	5773-1	.	.	.	.	.
35	1.0	1.0	5773-1	.	.	.	.	.
36	1.0	1.0	5773-1	10.31	10.31	.	.	8.59
37	1.0	.0	5773-4	.	.	.	9.85	7.05
38	2.0	2.0	BOG1	10.50	.	.	8.20	7.60

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
39	2.0	2.0	BOG3	9.00	.	.	.	.
40	2.0	2.0	BOG8	10.60	11.30	11.30	8.60	8.00
41	2.0	2.0	TYBRIN	.	9.70	10.20	.	.
42	2.0	2.0	STROB	.	.	.	.	.
43	2.0	2.0	STROB	.	10.10	10.40	.	.
44	2.0	2.0	GONGE	.	10.05	.	8.05	8.05
45	2.0	2.0	SKATE	9.10	9.00	9.90	.	7.40
46	2.0	2.0	SKATE	.	10.85	.	.	7.65
47	2.0	2.0	SKATE	10.40	.	.	.	.
48	2.0	2.0	SKATE	11.20	11.10	11.65	10.05	9.25
49	2.0	2.0	SKATE	9.05	10.30	10.55	7.30	6.70
50	2.0	1.0	BOG5	10.70	10.60	11.10	.	.
51	2.0	1.0	BOG14	.	.	.	.	.
52	2.0	1.0	BOG19	10.30	10.20	11.00	8.60	8.40
53	2.0	1.0	BOG19	10.40	10.80	11.60	8.90	8.70
54	2.0	1.0	SEJRO	10.80	10.60	10.60	7.90	7.80
55	2.0	1.0	STROB	10.90	11.40	11.40	9.10	8.70
56	2.0	1.0	SKATE	.	.	.	.	.
57	2.0	1.0	SKATE	.	.	.	8.90	8.25
58	2.0	1.0	SKATE	9.25	10.00	10.65	7.85	7.70
59	2.0	1.0	SKATE	.	.	.	.	.
60	2.0	1.0	SKATE	10.85	11.00	11.70	8.80	8.40
61	2.0	1.0	SKATE	9.50	9.80	10.30	.	7.35
62	2.0	1.0	SKATE	.	.	.	8.80	.
63	2.0	.0	BOG7	11.10	11.40	.	.	.
64	2.0	.0	STROB	.	.	10.30	.	.
65	2.0	.0	STROB	.	.	.	.	.
66	2.0	.0	SKATE	.	.	.	.	.
67	2.0	.0	SKATE	9.25	.	.	.	.
68	2.0	.0	SKATE	.	.	.	.	.
69	2.0	.0	SKATE	.	11.00	10.95	8.10	7.85
70	2.0	.0	SKATE	.	.	.	.	.
71	2.0	.0	SKATE	.	.	9.50	.	.
72	2.0	.0	SKATE	9.80	9.90	11.40	8.35	7.80
73	2.0	.0	SKATE	.	.	.	.	.
74	3.0	2.0	TEV1	10.40	9.90	.	8.50	7.50
75	3.0	2.0	TEV2	9.80	10.30	10.00	8.70	7.20
76	3.0	2.0	TEV3	10.40	10.50	11.40	8.70	7.80

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
77	3.0	2.0	TEV9	11.20	11.00	11.20	8.60	8.30
78	3.0	2.0	TEV10	11.70	11.70	12.00	9.10	8.00
79	3.0	2.0	HOED1	11.20	11.50	11.40	9.00	8.30
80	3.0	2.0	HOED7	10.30	11.00	11.40	.	.
81	3.0	2.0	HOED8	.	11.50	11.70	8.70	8.00
82	3.0	1.0	TEV4	10.40	10.10	10.80	8.50	7.70
83	3.0	1.0	TEV11	11.00	11.60	11.80	9.40	9.10
84	3.0	1.0	TEV13	10.70	10.50	10.90	8.70	7.70
85	3.0	1.0	TEV16	10.20	10.80	11.30	9.30	8.00
86	3.0	1.0	HOED5	10.20	10.80	.	.	.
87	3.0	1.0	HOED6	11.00	11.00	11.60	8.90	7.90
88	3.0	1.0	HOED9	10.50	10.80	11.10	8.70	7.30
89	4.0	2.0	OFNET	9.80	10.40	10.90	8.40	7.30
90	4.0	2.0	OFNET	10.00	.	10.60	.	.
91	4.0	2.0	OFNET	10.60	10.40	11.00	8.40	7.30
92	4.0	2.0	OFNET	10.30	10.30	11.00	8.20	.
93	4.0	2.0	OFNET	10.00	10.00	11.00	7.90	7.10
94	4.0	2.0	OFNET	10.60	10.50	10.60	8.40	7.80
95	4.0	2.0	OFNET	10.00	9.80	11.00	8.50	7.80
96	4.0	2.0	OFNET	9.00	10.20	.	8.80	.
97	4.0	2.0	OFNET	.	10.10	10.70	7.10	.
98	4.0	1.0	OFNET	10.80	10.90	11.80	8.00	8.00
99	4.0	1.0	OFNET	.	11.70	11.60	8.90	8.60
100	4.0	1.0	OFNET	11.30	11.10	12.00	8.90	.
101	4.0	1.0	OFNET	.	.	.	8.40	8.00
102	4.0	.0	OFNET	9.00	9.90	10.90	8.40	7.60
103	4.0	.0	OFNET	.	.	.	.	.
104	4.0	.0	OFNET	.	.	.	.	.
105	4.0	.0	OFNET	.	.	.	.	.
106	4.0	.0	OFNET	.	.	.	.	.
107	4.0	.0	OFNET	.	.	10.30	.	.
108	4.0	.0	OFNET	.	.	11.00	.	.
109	4.0	.0	OFNET	.	.	10.80	.	.
110	4.0	.0	OFNET	.	.	10.80	.	.
111	4.0	.0	OFNET	.	11.10	.	.	.
112	4.0	.0	OFNET	.	11.10	.	.	.
113	5.0	2.0	AXXXII	.	12.20	.	.	.
114	5.0	2.0	AM(34)	.	9.80	.	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
115	5.0	2.0	AM(16)	9.90	10.10	.	.	.
116	5.0	2.0	AM(13)	.	.	.	.	.
117	5.0	2.0	A57(1)	.	.	10.80	8.40	.
118	5.0	2.0	AF	9.80	.	.	.	.
119	5.0	2.0	MXVII	.	10.50	10.90	8.30	8.00
120	5.0	2.0	A(X)	9.70	.	10.30	.	7.40
121	5.0	2.0	A39	.	.	.	.	.
122	5.0	2.0	AE	.	.	.	.	.
123	5.0	2.0	A59(a)	.	.	.	.	.
124	5.0	2.0	AVIII?	.	.	.	8.00	.
125	5.0	2.0	AXIII	.	10.40	11.00	7.60	7.70
126	5.0	2.0	A64(A)	9.60	10.10	10.50	.	9.70
127	5.0	2.0	A32	8.50	.	.	.	.
128	5.0	2.0	A40	9.60	10.30	10.70	8.10	8.20
129	5.0	2.0	A42	.	.	.	.	.
130	5.0	2.0	A1	.	.	.	.	.
131	5.0	2.0	A35	.	.	.	.	.
132	5.0	2.0	A63	10.30	.	.	.	.
133	5.0	2.0	A(A)	.	.	.	.	.
134	5.0	2.0	M60	.	.	.	.	.
135	5.0	2.0	M12	.	.	11.30	8.30	8.00
136	5.0	2.0	M19	10.10	10.30	10.40	8.30	7.70
137	5.0	2.0	MVII	.	10.00	.	.	.
138	5.0	2.0	AIV	.	10.10	10.80	8.00	7.80
139	5.0	2.0	A(Y)	.	.	.	.	.
140	5.0	2.0	AV	.	10.30	10.80	.	.
141	5.0	2.0	A:C3	.	10.50	11.10	.	7.60
142	5.0	2.0	M16:CX	.	.	11.40	.	.
143	5.0	2.0	M25(a)	.	.	.	8.50	8.50
144	5.0	2.0	MB:CXI	10.70	11.30	11.00	.	8.00
145	5.0	2.0	M42	.	.	.	.	.
146	5.0	2.0	MXXXV	9.90	.	11.00	7.80	7.80
147	5.0	2.0	M54	.	9.70	10.60	7.30	7.50
148	5.0	2.0	M34	9.90	10.00	.	.	.
149	5.0	2.0	M52	9.50	10.20	.	.	7.80
150	5.0	2.0	MXXXVI	.	9.20	10.50	7.90	7.90
151	5.0	2.0	M4:CXX	.	.	.	.	.
152	5.0	2.0	MLNO#	.	8.90	9.80	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
153	5.0	2.0	ML51	.	.	.	.	.
154	5.0	2.0	ML48/6	.	.	9.80	.	.
155	5.0	2.0	ML38	.	.	10.30	.	.
156	5.0	2.0	ML37	10.00	10.50	11.00	8.70	7.70
157	5.0	2.0	ML3c	9.70	9.80	10.00	.	7.80
158	5.0	1.0	A29	9.00	10.10	10.40	.	.
159	5.0	1.0	A174	.	10.70	11.40	8.40	8.00
160	5.0	1.0	A25	.	9.90	10.80	7.40	.
161	5.0	1.0	AM(1)	.	.	.	.	.
162	5.0	1.0	A44	.	11.20	.	8.10	7.80
163	5.0	1.0	A45	.	.	.	.	.
164	5.0	1.0	AXIV	10.60	.	.	.	.
165	5.0	1.0	AQ	.	11.00	11.70	.	.
166	5.0	1.0	AIII	.	10.50	11.10	8.50	8.50
167	5.0	1.0	AXV	9.80	10.30	.	8.40	8.40
168	5.0	1.0	AA	.	11.50	.	.	.
169	5.0	1.0	AU	11.30	11.00	11.70	.	.
170	5.0	1.0	A176(e	.	10.10	.	.	.
171	5.0	1.0	AXXV(E	.	10.90	.	.	.
172	5.0	1.0	A175	.	11.10	11.00	9.10	.
173	5.0	1.0	A(Z)	.	10.30	10.80	8.00	7.60
174	5.0	1.0	A:CVI	11.00	11.00	11.50	8.50	.
175	5.0	1.0	M3	.	11.00	11.20	8.50	8.00
176	5.0	1.0	M5	10.20	10.80	10.70	8.20	7.80
177	5.0	1.0	MXXXII	9.90	10.20	.	8.00	7.20
178	5.0	1.0	AXVII	.	.	.	.	.
179	5.0	1.0	AM(21)	.	10.60	11.30	9.00	8.00
180	5.0	1.0	A(J)	.	11.00	11.70	8.80	8.30
181	5.0	1.0	AD	.	.	.	7.80	7.20
182	5.0	1.0	MXXVI(	.	.	.	.	.
183	5.0	1.0	M18	12.10	.	11.80	.	.
184	5.0	1.0	MZ	9.60	11.30	12.50	9.10	8.00
185	5.0	1.0	M32	.	11.00	10.60	8.80	8.50
186	5.0	1.0	M27(2)	10.80	11.00	11.20	8.10	7.70
187	5.0	1.0	MT	11.60	11.10	11.30	8.90	8.30
188	5.0	1.0	MA	10.10	10.70	11.70	8.80	8.40
189	5.0	1.0	M3	.	11.20	11.40	8.50	8.50
190	5.0	1.0	M14:CX	11.30	11.60	11.50	9.20	8.50

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
191	5.0	1.0	MV:CXX	11.20	11.00	11.00	9.00	8.70
192	5.0	1.0	M56	10.60	11.00	11.20	8.60	8.70
193	5.0	1.0	M53	.	11.40	11.00	8.30	8.40
194	5.0	1.0	M7	.	.	.	.	.
195	5.0	1.0	M39	10.80	10.80	11.80	8.60	8.10
196	5.0	1.0	M:CXXI	.	10.40	.	.	8.30
197	5.0	1.0	M16	.	11.20	11.50	8.90	.
198	5.0	1.0	M:CXXX	.	.	11.50	9.40	8.30
199	5.0	1.0	ML75	.	.	.	.	.
200	5.0	1.0	ML72	.	.	.	.	.
201	5.0	1.0	ML67	.	.	.	.	.
202	5.0	1.0	ML42	.	10.50	.	.	.
203	5.0	1.0	ML29	.	.	.	.	.
204	5.0	1.0	ML27c	.	.	10.60	.	.
205	5.0	1.0	ML23	.	.	10.70	7.90	7.20
206	5.0	1.0	ML1c	.	.	.	.	.
207	5.0	.0	A65(a)	.	.	.	.	.
208	5.0	.0	AM(35)	.	.	.	.	.
209	5.0	.0	AM(38)	.	.	.	.	.
210	5.0	.0	A43	.	.	.	.	.
211	5.0	.0	ACRT(V	.	.	.	.	.
212	5.0	.0	AD(2)	.	.	.	8.10	7.80
213	5.0	.0	A60(1)	.	10.10	11.00	7.90	7.40
214	5.0	.0	A177(a	.	.	.	.	.
215	5.0	.0	A(L)	10.10	10.50	10.70	8.20	7.70
216	5.0	.0	M1	.	10.70	11.00	7.70	.
217	5.0	.0	ACRT(V	9.60	10.00	11.10	7.50	7.50
218	5.0	.0	AM(31)	.	.	11.10	8.60	8.40
219	5.0	.0	AM(28)	.	11.80	12.00	8.90	8.70
220	5.0	.0	AM(17)	.	10.00	11.00	7.80	8.10
221	5.0	.0	AM(1)	.	.	.	.	.
222	5.0	.0	AM(9)	.	.	.	.	.
223	5.0	.0	AM(37)	.	.	.	.	.
224	5.0	.0	A54(B)	.	.	.	7.90	7.70
225	5.0	.0	ACRT(I	.	10.80	10.90	8.70	8.10
226	5.0	.0	A62(2)	11.20	.	.	.	.
227	5.0	.0	A36	.	.	10.80	8.60	.
228	5.0	.0	A177(V	.	.	.	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
229	5.0	.0	A(K)	10.50	.	.	8.00	7.80
230	5.0	.0	A(G)	.	.	.	.	.
231	5.0	.0	A177	.	10.70	10.80	8.20	7.80
232	5.0	.0	A176(a	.	9.60	10.40	8.00	7.30
233	5.0	.0	A188	9.50	.	10.70	8.10	.
234	5.0	.0	A(W)	.	11.10	.	.	.
235	5.0	.0	AM(23)	.	.	11.20	.	.
236	5.0	.0	A69	.	.	10.30	.	.
237	5.0	.0	M29:CX	.	.	11.30	.	.
238	5.0	.0	M47(2)	.	.	11.00	.	.
239	5.0	.0	M46	.	.	10.80	.	.
240	5.0	.0	M35(3)	.	11.20	11.10	.	.
241	5.0	.0	M35(2)	.	.	11.30	8.30	8.30
242	5.0	.0	M57(1)	.	11.30	11.20	8.90	8.00
243	5.0	.0	M59	.	.	10.30	.	.
244	5.0	.0	M55	.	9.80	10.50	.	.
245	5.0	.0	M49	.	.	11.30	.	.
246	5.0	.0	M1	11.80	.	11.70	9.20	8.30
247	5.0	.0	MDIV(2	.	.	.	.	7.50
248	5.0	.0	MDIV(1	.	.	.	.	.
249	5.0	.0	M37(6)	.	.	.	.	.
250	5.0	.0	MLNO#[	9.70	9.30	9.10	.	.
251	5.0	.0	MLNO#[	.	9.70	.	.	.
252	5.0	.0	ML71	.	.	.	.	.
253	5.0	.0	ML70	.	.	.	.	.
254	5.0	.0	ML68	.	.	.	.	.
255	5.0	.0	ML65	10.50	10.50	10.80	.	.
256	5.0	.0	ML63	.	.	10.20	.	.
257	5.0	.0	ML61	10.70	.	.	.	.
258	5.0	.0	ML60	.	.	.	.	.
259	5.0	.0	ML59	.	.	.	.	.
260	5.0	.0	ML58	.	.	.	.	.
261	5.0	.0	ML56	.	9.50	.	.	.
262	5.0	.0	ML55	.	9.80	10.20	7.70	7.30
263	5.0	.0	ML53	.	.	.	.	7.70
264	5.0	.0	ML50	9.80	10.20	11.10	.	.
265	5.0	.0	ML49	8.80	10.00	.	.	.
266	5.0	.0	ML47/7	.	9.10	10.30	8.20	7.30

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
267	5.0	.0	ML45/7	.	.	.	7.90	6.70
268	5.0	.0	ML43	.	.	10.30	.	.
269	5.0	.0	ML39	.	.	9.90	.	.
270	5.0	.0	ML36	.	.	10.40	.	.
271	5.0	.0	ML35	.	10.30	10.40	.	.
272	5.0	.0	ML34	9.30	9.50	10.50	.	.
273	5.0	.0	ML33	.	.	.	.	.
274	5.0	.0	ML32	.	.	11.10	.	7.70
275	5.0	.0	ML31	.	10.40	11.00	.	.
276	5.0	.0	ML26/N	.	10.50	.	.	.
277	5.0	.0	aO15sc	.	.	9.80	.	.
278	5.0	.0	aQ11sc	.	.	7.00	.	.
279	5.0	.0	bR12 4	.	10.40	.	.	.
280	5.0	.0	aR13 9	.	.	9.60	.	.
281	5.0	.0	aL15sc	.	.	.	.	.
282	5.0	.0	aL15sc	.	.	.	.	.
283	5.0	.0	aO1024	.	.	.	.	.
284	5.0	.0	bO11sc	.	.	.	.	.
285	5.0	.0	bO11 1	.	.	.	.	.
286	5.0	.0	aQ13sc	.	.	.	.	.
287	5.0	.0	bR12sc	.	.	.	.	.

RAW DATA - Right MDMD

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
1	1.0	2.0	5773-6	11.09	10.27	11.33	6.82	6.52
2	1.0	2.0	5773-12	.	.	.	.	.
3	1.0	2.0	5773-15	.	.	.	.	.
4	1.0	2.0	5773-21	10.75	9.97	11.05	.	.
5	1.0	2.0	5773-28	.	.	.	.	.
6	1.0	2.0	5773-32	10.58	.	.	6.95	.
7	1.0	2.0	5773-34	9.30	9.87	10.09	6.06	.
8	1.0	2.0	5773-40	11.22	11.57	12.27	.	.
9	1.0	2.0	5773-41	9.83	9.55	10.31	.	6.39
10	1.0	2.0	5773-54	10.87	9.83	10.52	6.49	5.88
11	1.0	2.0	5773-56	9.41	9.47	9.98	6.15	7.12
12	1.0	2.0	5773-70	10.32	10.44	10.25	7.18	.
13	1.0	2.0	5773-87	.	.	.	6.27	.
14	1.0	2.0	5773-92	.	.	.	.	.
15	1.0	2.0	5773-126	8.88	10.63	10.56	6.69	6.53
16	1.0	1.0	5773-4	10.18	9.61	9.98	6.70	5.49
17	1.0	1.0	5773-7	12.04	12.04	11.13	7.57	7.62
18	1.0	1.0	5773-8	12.21	11.32	11.27	7.19	6.62
19	1.0	1.0	5773-17	.	11.52	.	6.86	6.56
20	1.0	1.0	5773-22	.	.	.	.	.
21	1.0	1.0	5773-26	.	.	.	.	.
22	1.0	1.0	5773-29	10.03	10.83	.	6.83	.
23	1.0	1.0	5773-46	.	.	.	.	.
24	1.0	1.0	5773-58	11.11	10.12	10.93	6.17	.
25	1.0	1.0	5773-73	11.20	.	.	7.56	7.29
26	1.0	1.0	5773-75	.	.	.	.	.
27	1.0	1.0	5773-77	9.66	9.70	10.93	5.63	6.81
28	1.0	1.0	5773-99	.	.	.	.	.
29	1.0	1.0	5773-101	.	.	.	7.35	.
30	1.0	1.0	5773-113	.	.	.	.	.
31	1.0	1.0	5773-117	.	10.18	.	.	.
32	1.0	1.0	5773-123	.	.	.	.	6.26
33	1.0	1.0	5773-131	10.73	10.42	11.09	6.62	7.05
34	1.0	1.0	5773-134	.	.	.	.	.
35	1.0	1.0	5773-136	.	.	.	.	.
36	1.0	1.0	5773-139	.	11.15	.	.	7.73
37	1.0	.0	5773-47	.	.	.	9.83	6.60
38	2.0	2.0	BOG1	11.10	.	.	7.50	7.10

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
39	2.0	2.0	BOG3	9.60	.	.	.	.
40	2.0	2.0	BOG8	11.40	11.60	11.40	7.30	7.00
41	2.0	2.0	TYBRIND	10.20	10.40	10.90	6.80	7.00
42	2.0	2.0	STROBY A	.	.	.	.	.
43	2.0	2.0	STROBY C	.	10.50	10.60	.	.
44	2.0	2.0	GONGE 7	.	11.20	10.70	7.10	7.30
45	2.0	2.0	SKATEA4	.	.	.	.	.
46	2.0	2.0	SKATEA59	11.40	.	.	.	.
47	2.0	2.0	SKATEB14	.	.	.	.	.
48	2.0	2.0	SKATEB22	11.85	11.00	12.00	7.75	7.30
49	2.0	1.0	BOG5	11.40	10.70	11.70	.	.
50	2.0	1.0	BOG14	12.50	.	.	.	.
51	2.0	1.0	BOG19A	11.10	10.30	.	7.10	7.40
52	2.0	1.0	BOG19C	10.80	10.30	10.60	6.40	6.90
53	2.0	1.0	SEJRO	10.90	10.70	11.10	.	6.60
54	2.0	1.0	STROBY D	11.10	11.20	.	6.80	7.00
55	2.0	1.0	SKATEA7	.	.	.	7.40	7.50
56	2.0	1.0	SKATEA51	.	.	.	.	.
57	2.0	1.0	SKATEA53	10.60	11.10	11.60	6.90	7.00
58	2.0	1.0	SKATEB1	12.10	11.70	12.45	7.40	7.35
59	2.0	1.0	SKATEB2	.	.	.	.	.
60	2.0	1.0	SKATEB4	10.00	10.75	10.70	6.80	6.30
61	2.0	1.0	SKATEA5	.	.	.	.	7.30
62	2.0	.0	BOG7	11.20	12.00	.	.	.
63	2.0	.0	STROBY B	.	.	10.30	.	.
64	2.0	.0	STROBY E	.	.	.	.	.
65	2.0	.0	SKATEA6	.	.	.	.	.
66	2.0	.0	SKATEA8	12.00	.	.	.	.
67	2.0	.0	SKATEA13	.	.	.	.	.
68	2.0	.0	SKATEA31	.	11.30	11.95	6.60	7.25
69	2.0	.0	SKATEA42	.	.	10.65	.	.
70	2.0	.0	SKATEA47	10.70	10.80	12.20	7.45	7.10
71	2.0	.0	SKATEA3	9.40	9.10	10.05	.	6.10
72	2.0	.0	SKATEA57	.	.	.	.	.
73	2.0	.0	SKATEA36	.	.	.	.	.
74	2.0	.0	SKATEB3	11.50	11.00	11.80	7.20	7.40
75	2.0	.0	SKATEB9	9.75	10.40	10.60	.	6.25
76	2.0	.0	SKATEB11	.	.	.	8.00	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
77	2.0	.0	SKATEB12a	11.70	10.20	11.40	7.00	6.85
78	3.0	2.0	TEV3	10.00	9.80	10.60	6.50	6.50
79	3.0	2.0	TEV9	10.00	10.10	10.20	6.80	6.90
80	3.0	2.0	TEV10	12.00	11.60	12.10	6.90	6.80
81	3.0	2.0	HOED1	10.50	10.50	10.20	7.00	5.70
82	3.0	2.0	HOED4	11.20	10.50	10.30	6.40	.
83	3.0	2.0	HOED7	.	.	11.50	.	.
84	3.0	2.0	HOED8	.	11.10	11.40	7.30	7.30
85	3.0	1.0	TEV4	11.00	10.00	10.60	6.80	6.80
86	3.0	1.0	TEV11	11.60	11.20	11.20	6.90	6.70
87	3.0	1.0	TEV13	10.80	10.30	11.30	6.60	6.80
88	3.0	1.0	TEV16	11.60	11.10	10.60	7.80	7.50
89	3.0	1.0	HOED6	10.60	10.90	11.30	7.30	6.60
90	3.0	1.0	HOED9	10.50	10.30	11.20	6.90	7.20
91	4.0	2.0	OFNET 2477	10.10	10.50	11.10	6.50	6.90
92	4.0	2.0	OFNET 2487	11.10	.	10.90	.	.
93	4.0	2.0	OFNET 2490	10.60	10.40	10.40	7.10	7.20
94	4.0	2.0	OFNET 2504	10.60	10.50	11.10	6.90	.
95	4.0	2.0	OFNET 1822	.	10.00	10.80	6.00	7.00
96	4.0	2.0	OFNET 2488	10.50	9.80	10.80	6.50	6.90
97	4.0	2.0	OFNET 2481	10.00	9.80	10.70	5.90	.
98	4.0	2.0	OFNET 2486	10.50	9.80	11.10	6.90	7.20
99	4.0	2.0	OFNET 2501	9.80	10.50	10.80	7.10	.
100	4.0	1.0	OFNET 2484	10.90	11.00	12.20	7.70	7.70
101	4.0	1.0	OFNET 2496	.	11.80	11.30	7.30	7.50
102	4.0	1.0	OFNET 2475	.	10.60	11.10	.	.
103	4.0	1.0	OFNET 2493	.	.	.	6.90	7.20
104	4.0	.0	OFNET 2476	10.80	10.60	11.00	7.20	7.20
105	4.0	.0	OFNET 5	.	.	.	.	.
106	4.0	.0	OFNET 2503	.	.	.	.	.
107	4.0	.0	OFNET 2485	.	.	.	.	.
108	4.0	.0	OFNET 2505	.	.	.	.	.
109	4.0	.0	OFNET 2474	.	.	11.60	.	.
110	4.0	.0	OFNET 2495	.	.	.	.	.
111	4.0	.0	OFNET 2502	.	.	12.00	.	.
112	4.0	.0	OFNET 2480	.	.	11.30	.	.
113	4.0	.0	OFNET 2492	.	.	11.70	.	.
114	4.0	.0	OFNET 2498	.	.	11.10	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
115	4.0	.0	OFNET 2500	.	.	11.90	.	.
116	5.0	2.0	AXII	.	10.90	11.70	5.80	6.80
117	5.0	2.0	AXXX11(F)	.	9.70	.	.	.
118	5.0	2.0	A64(A)	10.20	10.40	10.50	.	7.50
119	5.0	2.0	A32	9.50	.	.	.	.
120	5.0	2.0	AM(34)	.	10.80	.	.	.
121	5.0	2.0	AM(16)	10.90	9.60	.	.	.
122	5.0	2.0	AM(13)	.	.	.	.	.
123	5.0	2.0	A40	10.00	9.70	10.20	6.50	7.10
124	5.0	2.0	A42	.	.	.	.	.
125	5.0	2.0	A1	.	.	.	.	.
126	5.0	2.0	A57(1)	.	.	10.70	7.30	.
127	5.0	2.0	A35	.	.	.	.	.
128	5.0	2.0	A63	11.00	.	.	.	.
129	5.0	2.0	A(A)	.	.	.	.	.
130	5.0	2.0	AF	11.20	.	.	.	.
131	5.0	2.0	M60	.	.	.	.	.
132	5.0	2.0	M12	.	10.80	11.20	6.80	6.60
133	5.0	2.0	M19	10.80	10.30	10.30	7.00	6.70
134	5.0	2.0	MXVII	10.00	.	10.30	6.50	6.40
135	5.0	2.0	MVII	.	.	.	.	.
136	5.0	2.0	AIV	.	10.60	11.40	6.50	6.90
137	5.0	2.0	A(Y)	.	.	.	.	.
138	5.0	2.0	A(X)	10.20	10.00	10.10	.	6.50
139	5.0	2.0	AV	.	9.60	9.80	.	.
140	5.0	2.0	A173(1)	10.90	10.40	11.60	7.00	7.40
141	5.0	2.0	A39	.	.	.	.	.
142	5.0	2.0	AE	.	.	.	.	.
143	5.0	2.0	A59(a)	.	.	.	.	.
144	5.0	2.0	A:C3	11.50	11.10	12.00	6.80	6.70
145	5.0	2.0	M16:CXXXIX	.	.	11.30	.	.
146	5.0	2.0	M25(a):CXXX	.	.	.	6.80	7.20
147	5.0	2.0	MXXXI	.	.	.	.	.
148	5.0	2.0	M18	10.40	.	11.60	.	.
149	5.0	2.0	MB:CXIX	11.00	10.40	11.00	6.30	7.00
150	5.0	2.0	M42	.	.	.	.	.
151	5.0	2.0	MXXXV	10.60	.	11.60	7.00	6.90
152	5.0	2.0	M54	.	10.40	11.30	6.20	6.50

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
153	5.0	2.0	M34	10.30	11.10	.	.	.
154	5.0	2.0	M52	9.70	9.70	.	6.40	6.80
155	5.0	2.0	MXXXVII	.	10.00	10.50	6.40	6.60
156	5.0	2.0	MLNO#1	.	9.30	10.60	.	.
157	5.0	2.0	ML62/48	.	.	9.80	.	.
158	5.0	2.0	ML51	.	.	.	.	.
159	5.0	2.0	ML38	.	.	11.50	.	.
160	5.0	2.0	ML37	10.40	10.80	10.90	6.90	6.90
161	5.0	2.0	ML3c	10.00	10.10	10.30	.	6.60
162	5.0	1.0	A29	9.70	9.30	10.40	.	.
163	5.0	1.0	A174	.	11.50	12.00	7.90	7.40
164	5.0	1.0	A25	.	10.20	10.60	6.90	.
165	5.0	1.0	AM(1)	.	.	.	.	.
166	5.0	1.0	A44	.	11.50	10.80	7.00	6.70
167	5.0	1.0	A45	.	.	.	.	.
168	5.0	1.0	AXIV	11.90	.	.	.	.
169	5.0	1.0	AQ	.	11.60	11.50	.	.
170	5.0	1.0	AIII	.	11.10	11.70	7.20	6.90
171	5.0	1.0	AXV	.	10.40	.	6.50	6.70
172	5.0	1.0	AA	.	11.60	.	.	.
173	5.0	1.0	AU	12.10	11.20	11.80	.	.
174	5.0	1.0	A176(e)	.	.	.	.	.
175	5.0	1.0	AXXV(E)	.	12.30	.	.	7.00
176	5.0	1.0	A175	.	.	10.90	7.50	7.40
177	5.0	1.0	A(Z)	.	10.70	11.60	7.00	7.30
178	5.0	1.0	MXLI	.	.	.	.	.
179	5.0	1.0	M3	.	11.70	12.50	7.20	7.20
180	5.0	1.0	M5	11.00	11.10	11.00	6.50	6.10
181	5.0	1.0	MXXXII	10.60	11.10	.	6.80	6.90
182	5.0	1.0	AM(21)	.	11.10	11.80	7.50	7.10
183	5.0	1.0	AXVII	.	.	.	.	.
184	5.0	1.0	AD	.	.	.	6.80	6.30
185	5.0	1.0	A(J)	.	11.00	11.50	6.80	6.90
186	5.0	1.0	MZ	9.50	10.70	11.10	6.70	6.90
187	5.0	1.0	M32	.	11.10	10.70	6.70	6.90
188	5.0	1.0	M27(2)	11.40	11.20	11.20	6.60	6.50
189	5.0	1.0	MT	10.80	12.30	11.40	6.60	6.50
190	5.0	1.0	MA	10.80	10.90	11.80	6.90	7.20

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
191	5.0	1.0	M3	.	11.90	11.60	6.60	6.70
192	5.0	1.0	M14:CXXI	11.30	11.50	11.50	7.00	6.90
193	5.0	1.0	MV:CXXVII	10.70	10.70	11.50	7.40	8.10
194	5.0	1.0	M56	10.80	11.10	10.70	6.50	7.10
195	5.0	1.0	M53	.	11.20	11.10	6.80	7.00
196	5.0	1.0	M7	.	.	.	.	.
197	5.0	1.0	M39	10.80	11.80	11.60	6.90	6.80
198	5.0	1.0	M:CXXII	.	11.60	.	.	.
199	5.0	1.0	M2:CXXVI	.	.	.	.	.
200	5.0	1.0	M27:CXXXIII	.	10.40	11.30	6.40	6.70
201	5.0	1.0	M16	.	10.40	11.70	7.10	.
202	5.0	1.0	M:CXXXIV	.	.	10.70	7.10	7.60
203	5.0	1.0	ML75	.	.	.	.	.
204	5.0	1.0	ML72	.	.	.	.	.
205	5.0	1.0	ML67	.	.	.	.	.
206	5.0	1.0	ML42	.	10.70	.	.	.
207	5.0	1.0	ML29	.	.	.	.	.
208	5.0	1.0	ML23	.	.	11.30	6.40	6.60
209	5.0	1.0	ML1c	.	.	.	.	.
210	5.0	.0	AM(9)	.	.	.	.	.
211	5.0	.0	AM(11)	.	.	.	.	.
212	5.0	.0	AM(17)	.	10.40	12.00	6.40	6.90
213	5.0	.0	AM(28)	11.40	12.30	12.00	6.80	6.90
214	5.0	.0	AM(31)	.	.	10.70	7.00	7.30
215	5.0	.0	AM(35)	.	.	.	.	.
216	5.0	.0	AM(37)	.	.	.	.	.
217	5.0	.0	AM(38)	.	.	.	.	.
218	5.0	.0	A43	.	.	.	.	.
219	5.0	.0	A64(b)	.	.	.	7.20	6.70
220	5.0	.0	ACRT(III)	.	10.40	10.70	6.90	6.70
221	5.0	.0	ACRT(VIII	.	.	.	.	7.00
222	5.0	.0	AD(2)	.	.	.	7.00	7.00
223	5.0	.0	A62(2)	11.50	.	.	.	.
224	5.0	.0	A60(1)	.	10.70	11.20	6.50	7.20
225	5.0	.0	A36	.	11.10	11.70	7.20	.
226	5.0	.0	A177(a)	.	.	.	.	.
227	5.0	.0	A177(v)	.	.	.	.	.
228	5.0	.0	A(K)	10.60	10.30	10.50	6.70	6.50

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
229	5.0	.0	A(L)	11.30	10.80	11.30	6.90	7.10
230	5.0	.0	A(G)	.	.	.	.	.
231	5.0	.0	M1	.	11.00	11.50	6.80	.
232	5.0	.0	A177	.	11.20	11.20	6.80	7.00
233	5.0	.0	A176(a)	.	9.80	11.30	7.20	7.00
234	5.0	.0	A188	.	10.20	11.10	6.20	7.00
235	5.0	.0	A(W)	.	11.50	.	.	.
236	5.0	.0	AM(23)	.	.	12.10	.	.
237	5.0	.0	A69	.	.	11.30	.	.
238	5.0	.0	M20:CXXXV	.	.	12.10	.	.
239	5.0	.0	M47(2)	.	.	11.70	.	.
240	5.0	.0	M46	.	.	11.80	.	.
241	5.0	.0	M35(3)	.	10.50	11.70	.	.
242	5.0	.0	M35(2)	.	.	11.30	6.80	7.30
243	5.0	.0	M57(1)	.	12.20	12.30	7.20	7.50
244	5.0	.0	M59	.	.	11.10	.	.
245	5.0	.0	M55	.	11.00	11.40	.	.
246	5.0	.0	M49	.	.	12.30	.	.
247	5.0	.0	M1	11.40	.	11.20	7.20	6.60
248	5.0	.0	MDIV(2)	.	.	.	.	.
249	5.0	.0	MDIV(1)	.	.	.	.	.
250	5.0	.0	MLNO#[MKJ	10.20	9.60	10.30	.	.
251	5.0	.0	MLNO#[MKJ	.	10.00	.	.	.
252	5.0	.0	ML74/47	.	10.10	10.10	6.30	6.00
253	5.0	.0	ML73	.	.	.	.	.
254	5.0	.0	ML71	.	.	.	.	.
255	5.0	.0	ML70	.	.	.	.	.
256	5.0	.0	ML68	.	.	.	.	.
257	5.0	.0	ML65	11.30	11.00	11.50	.	.
258	5.0	.0	ML63	.	.	.	.	.
259	5.0	.0	ML60	.	.	.	.	.
260	5.0	.0	ML61	9.20	.	.	.	.
261	5.0	.0	ML59	.	.	.	.	.
262	5.0	.0	ML58	.	.	.	.	.
263	5.0	.0	ML56	.	9.60	.	.	.
264	5.0	.0	ML55	.	10.50	10.40	6.20	6.00
265	5.0	.0	ML53	.	.	.	.	6.40
266	5.0	.0	ML50	10.20	10.00	10.80	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
267	5.0	.0	ML49	10.20	10.20	.	.	.
268	5.0	.0	ML45	.	.	.	.	.
269	5.0	.0	ML45/73/4	.	.	.	6.00	5.90
270	5.0	.0	ML43	.	.	11.00	.	.
271	5.0	.0	ML40	.	.	.	.	.
272	5.0	.0	ML39	.	.	10.30	.	.
273	5.0	.0	ML36	.	.	11.00	.	.
274	5.0	.0	ML35	.	10.20	11.20	.	.
275	5.0	.0	ML34	10.00	10.70	11.10	.	.
276	5.0	.0	ML33	.	.	.	.	.
277	5.0	.0	ML32	.	.	11.80	.	7.60
278	5.0	.0	ML31	.	10.80	11.50	.	.
279	5.0	.0	ML27c	.	.	11.00	.	.
280	5.0	.0	ML26/NO#2	.	10.90	.	.	.
281	5.0	.0	aL15sc289	.	.	.	.	.
282	5.0	.0	aL15sc141	.	.	.	.	.
283	5.0	.0	aO15sc36	.	.	11.50	.	.
284	5.0	.0	aQ11sc495	.	.	8.10	.	.

RAW DATA - Right MXBL

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
1	1.0	2.0	5773-6	.	.	.	.	.
2	1.0	2.0	5773-12	11.79	.	.	.	.
3	1.0	2.0	5773-15	.	.	.	.	.
4	1.0	2.0	5773-21	.	.	10.66	.	.
5	1.0	2.0	5773-28	.	11.55	.	.	.
6	1.0	2.0	5773-32	.	.	.	.	.
7	1.0	2.0	5773-34	9.81	10.61	10.44	8.46	.
8	1.0	2.0	5773-40	9.32	10.47	10.69	.	.
9	1.0	2.0	5773-41	.	.	.	.	.
10	1.0	2.0	5773-54	.	.	.	8.49	8.52
11	1.0	2.0	5773-56	10.84	.	10.84	.	.
12	1.0	2.0	5773-70	.	11.30	10.62	9.53	9.18
13	1.0	2.0	5773-87	.	.	.	.	.
14	1.0	2.0	5773-92	.	.	.	.	.
15	1.0	2.0	5773-126	9.57	11.27	10.83	8.44	9.14
16	1.0	1.0	5773-4	.	.	.	.	.
17	1.0	1.0	5773-7	13.01	11.75	10.09	.	.
18	1.0	1.0	5773-8	.	11.90	11.49	9.20	8.13
19	1.0	1.0	5773-17	.	.	.	.	.
20	1.0	1.0	5773-22	.	.	.	.	.
21	1.0	1.0	5773-26	.	.	.	.	.
22	1.0	1.0	5773-29	.	.	.	.	.
23	1.0	1.0	5773-46	.	.	.	.	.
24	1.0	1.0	5773-58	11.60	11.31	10.45	9.34	.
25	1.0	1.0	5773-73	11.34	11.65	11.40	9.52	9.78
26	1.0	1.0	5773-75	.	.	.	.	.
27	1.0	1.0	5773-77	.	.	.	.	.
28	1.0	1.0	5773-99	.	.	.	.	.
29	1.0	1.0	5773-101	.	.	.	.	.
30	1.0	1.0	5773-113	.	10.42	.	.	.
31	1.0	1.0	5773-117	10.62	.	.	.	.
32	1.0	1.0	5773-123	.	.	.	.	.
33	1.0	1.0	5773-131	.	.	11.51	9.68	10.25
34	1.0	1.0	5773-134	10.15	.	.	.	.
35	1.0	1.0	5773-136	.	.	.	.	.
36	1.0	1.0	5773-139	.	.	.	.	.
37	1.0	.0	5773-47	.	.	.	.	.
38	2.0	2.0	BOG1	.	10.80	11.20	8.30	8.40

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
39	2.0	2.0	BOG3	9.50	.	.	.	.
40	2.0	2.0	BOG8	12.00	12.50	12.20	9.10	8.70
41	2.0	2.0	TYBRIND	.	.	11.00	.	.
42	2.0	2.0	STROBY A	.	.	.	.	.
43	2.0	2.0	STROBY C	.	.	11.20	9.40	9.80
44	2.0	2.0	GONGE 7	10.00	11.85	11.70	9.70	9.60
45	2.0	2.0	SKATEA3	9.75	.	.	8.60	8.20
46	2.0	2.0	SKATEA4	11.75	12.00	11.80	.	.
47	2.0	2.0	SKATEA35	9.30	.	.	.	.
48	2.0	2.0	SKATEA59	10.40	.	.	.	.
49	2.0	2.0	SKATEB8	10.10	11.30	11.30	9.15	8.85
50	2.0	2.0	SKATEB14	10.90	.	.	.	.
51	2.0	2.0	SKATEB22	.	.	.	.	.
52	2.0	2.0	SKATEB3	10.80	11.30	10.85	8.60	.
53	2.0	1.0	BOG5	11.90	11.50	12.10	9.80	10.00
54	2.0	1.0	BOG14	13.40	.	.	.	.
55	2.0	1.0	BOG15	10.30	11.20	11.40	.	.
56	2.0	1.0	BOG19A	10.60	11.20	11.50	9.40	9.40
57	2.0	1.0	BOG19C	11.60	12.50	12.40	9.60	9.80
58	2.0	1.0	SEJRO	11.50	11.60	11.60	8.60	9.20
59	2.0	1.0	STROBY D	11.40	12.40	12.40	10.50	10.00
60	2.0	1.0	SKATEA2	9.75	.	.	.	.
61	2.0	1.0	SKATEA5	11.05	12.90	12.70	10.00	.
62	2.0	1.0	SKATEA7	.	.	.	.	.
63	2.0	1.0	SKATEA22	.	.	.	.	.
64	2.0	1.0	SKATEA53	11.20	12.20	11.50	9.50	9.30
65	2.0	1.0	SKATEB2	.	.	.	.	.
66	2.0	1.0	SKATEB4	.	.	.	.	.
67	2.0	1.0	SKATEB10b	12.85	12.50	12.20	.	9.90
68	2.0	1.0	SKATEB20	12.00	13.00	13.10	10.25	10.30
69	2.0	.0	BOG7	.	13.20	.	.	.
70	2.0	.0	STROBY B	.	.	11.20	.	.
71	2.0	.0	STROBY E	.	.	11.20	.	.
72	2.0	.0	SKATEA8	.	.	.	.	.
73	2.0	.0	SKATEA47	.	.	12.00	9.05	9.05
74	2.0	.0	SKATEA57	.	12.20	12.50	9.50	9.60
75	2.0	.0	SKATEB13	.	.	.	.	.
76	3.0	2.0	TEV1	.	.	.	11.70	9.90

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
77	3.0	2.0	TEV2	11.20	11.40	11.60	9.60	9.30
78	3.0	2.0	TEV3	11.80	11.90	11.50	9.00	9.00
79	3.0	2.0	TEV9	11.60	12.10	13.20	9.60	9.70
80	3.0	2.0	TEV10	.	14.30	13.00	8.60	9.20
81	3.0	2.0	HOED1	11.80	12.60	11.40	9.70	9.40
82	3.0	2.0	HOED8	.	12.50	12.00	9.70	.
83	3.0	1.0	TEV4	11.50	11.80	12.30	9.80	9.60
84	3.0	1.0	TEV8	12.20	12.50	12.20	.	.
85	3.0	1.0	TEV11	11.50	12.30	12.40	.	.
86	3.0	1.0	TEV13	11.00	11.50	11.90	10.00	8.80
87	3.0	1.0	HOED6	.	13.00	12.50	10.00	9.70
88	3.0	1.0	HOED9	11.40	12.30	11.90	9.70	9.50
89	4.0	2.0	OFNET 248	.	11.30	12.00	8.90	9.00
90	4.0	2.0	OFNET 248	.	11.60	12.00	9.50	9.40
91	4.0	2.0	OFNET 248	.	11.30	11.40	9.20	9.10
92	4.0	2.0	OFNET 250	.	.	.	.	.
93	4.0	2.0	OFNET 247	10.00	11.20	11.30	9.40	9.10
94	4.0	2.0	OFNET 248	11.10	11.50	.	8.90	9.00
95	4.0	2.0	OFNET 182	10.90	.	11.80	9.00	8.50
96	4.0	2.0	OFNET 250	.	.	11.10	.	.
97	4.0	2.0	OFNET 249	11.00	11.90	11.90	9.00	9.00
98	4.0	2.0	OFNET 250	11.20	10.80	.	9.00	.
99	4.0	1.0	OFNET 248	11.20	12.40	12.80	9.80	.
100	4.0	1.0	OFNET 249	.	11.70	12.00	9.80	9.60
101	4.0	1.0	OFNET 249	.	12.00	.	9.80	9.70
102	4.0	1.0	OFNET 247	11.50	12.90	.	.	.
103	4.0	.0	OFNET 250	.	.	.	.	.
104	4.0	.0	OFNET 247	11.20	11.10	12.10	9.60	9.50
105	4.0	.0	OFNET 249	.	.	11.70	.	.
106	5.0	2.0	M25(a):CX	11.00	11.20	10.70	9.50	9.30
107	5.0	2.0	M57:CXXXI	.	13.00	.	.	9.20
108	5.0	2.0	A:C3	13.50	12.40	12.50	.	9.70
109	5.0	2.0	A173(1)	11.70	11.40	11.60	9.20	9.90
110	5.0	2.0	A5	12.60	.	11.60	.	.
111	5.0	2.0	A(Y)	.	.	.	.	.
112	5.0	2.0	AIV	.	12.80	12.30	9.60	9.90
113	5.0	2.0	MVII	.	.	.	8.90	.
114	5.0	2.0	M19	.	11.90	11.70	9.50	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
115	5.0	2.0	M12	.	11.70	.	9.80	.
116	5.0	2.0	M60	.	12.00	12.30	.	.
117	5.0	2.0	A(A)	.	.	.	.	.
118	5.0	2.0	A63	.	.	.	.	.
119	5.0	2.0	A35	11.00	.	.	.	.
120	5.0	2.0	A1	.	.	.	.	8.40
121	5.0	2.0	A42	.	.	.	.	.
122	5.0	2.0	A40	12.50	12.00	12.30	9.60	10.30
123	5.0	2.0	A32	.	.	11.20	.	.
124	5.0	2.0	A64(A)	11.10	11.40	11.20	8.90	9.50
125	5.0	2.0	AXIII	.	.	.	.	.
126	5.0	2.0	AVIII?	.	.	.	.	.
127	5.0	2.0	MXVI	.	.	.	.	.
128	5.0	2.0	MY	.	.	12.60	.	.
129	5.0	2.0	A34	.	13.10	.	.	.
130	5.0	2.0	A27	.	.	.	.	.
131	5.0	2.0	AK	.	.	.	.	.
132	5.0	2.0	M6:CXXVII	.	.	12.40	9.50	9.80
133	5.0	2.0	M28:CXXXV	11.40	11.80	11.60	9.70	9.60
134	5.0	2.0	M53(2)	.	.	.	.	.
135	5.0	2.0	MXXXI	.	11.00	.	.	.
136	5.0	2.0	MB:CXIX	.	.	.	.	.
137	5.0	2.0	ML4c	.	.	.	.	.
138	5.0	2.0	ML3c	.	11.60	11.20	.	.
139	5.0	1.0	MXXXII	.	11.70	12.30	9.80	9.70
140	5.0	1.0	M5	11.90	12.10	12.00	9.40	9.10
141	5.0	1.0	M3	13.10	12.10	12.30	9.30	9.60
142	5.0	1.0	A:CVI	12.60	13.10	12.70	10.20	10.10
143	5.0	1.0	A(Z)	.	12.40	11.70	9.00	9.30
144	5.0	1.0	A175	11.50	12.50	12.10	10.10	9.90
145	5.0	1.0	AXXV(E)	.	.	.	.	9.80
146	5.0	1.0	A176(e)	12.70	12.70	.	9.60	9.00
147	5.0	1.0	AU	12.30	11.30	13.00	10.10	10.20
148	5.0	1.0	AA	13.20	13.40	12.90	10.80	.
149	5.0	1.0	AXV	.	.	.	.	.
150	5.0	1.0	AIII	.	12.10	12.30	9.90	10.00
151	5.0	1.0	AQ	.	.	.	.	.
152	5.0	1.0	AXIV	.	.	.	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
153	5.0	1.0	A45	11.60	.	.	9.40	.
154	5.0	1.0	A44	.	12.70	.	.	9.20
155	5.0	1.0	AM(1)	.	.	.	.	.
156	5.0	1.0	A25	.	10.00	12.00	9.20	9.20
157	5.0	1.0	A174	.	12.00	12.40	.	9.20
158	5.0	1.0	A29	10.30	.	11.40	9.40	9.20
159	5.0	1.0	MW	12.50	.	.	.	.
160	5.0	1.0	MT	12.30	.	12.50	9.90	9.60
161	5.0	1.0	A5	.	.	11.80	8.90	9.60
162	5.0	1.0	A(O)	9.80	.	.	.	.
163	5.0	1.0	M:CXLI(2)	11.70	11.10	.	.	.
164	5.0	1.0	M20:CXX	.	.	12.30	9.50	9.70
165	5.0	1.0	M16:CXXXI	.	.	.	9.10	.
166	5.0	1.0	MXXXII	.	11.80	12.20	9.80	9.70
167	5.0	1.0	MXXVI(2)	.	.	.	.	.
168	5.0	1.0	MD	10.90	12.40	.	.	.
169	5.0	1.0	M18	.	.	12.50	.	.
170	5.0	1.0	MZ	.	12.70	12.40	9.40	10.10
171	5.0	1.0	M32	.	12.60	12.30	.	.
172	5.0	1.0	M27(2)	.	12.70	.	.	.
173	5.0	1.0	MT	12.40	13.00	12.50	9.90	9.70
174	5.0	1.0	MA	12.50	12.70	.	.	.
175	5.0	1.0	M3	12.40	12.60	12.20	9.20	9.20
176	5.0	1.0	M14:CXXI	13.00	13.30	.	10.30	9.30
177	5.0	1.0	MV:CXXVII	.	12.30	12.60	10.10	10.60
178	5.0	1.0	M56	.	.	.	9.80	10.40
179	5.0	1.0	M53	11.90	.	12.10	9.70	.
180	5.0	1.0	M27:CXXXI	.	.	11.70	.	.
181	5.0	1.0	ML1c	.	11.60	11.70	.	.
182	5.0	1.0	ML2c	7.60	11.10	11.20	8.00	7.80
183	5.0	.0	M1	12.50	12.80	12.50	.	.
184	5.0	.0	A (L)	.	11.80	11.70	9.20	9.00
185	5.0	.0	A177(a)	.	.	12.40	10.30	9.90
186	5.0	.0	A60(1)	.	11.50	11.60	9.30	.
187	5.0	.0	AD(2)	.	10.70	.	9.00	9.20
188	5.0	.0	ACRT(VIII	11.40	.	.	.	.
189	5.0	.0	A43	11.60	12.40	12.10	.	.
190	5.0	.0	AM(38)	11.20	11.70	12.90	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
191	5.0	.0	AM(35)	.	12.30	.	.	.
192	5.0	.0	M40:CXXIV	10.70	11.50	11.50	9.20	9.60
193	5.0	.0	A176(a)	.	12.60	11.90	9.70	.
194	5.0	.0	A(N)	.	.	.	.	.
195	5.0	.0	A176	.	.	.	.	.
196	5.0	.0	A61(4)	.	.	.	.	.
197	5.0	.0	A61(2)	.	.	.	.	.
198	5.0	.0	A62(5)	.	.	.	.	.
199	5.0	.0	A62(6)	.	.	.	.	.
200	5.0	.0	A60(2)	13.00	12.90	.	.	.
201	5.0	.0	ACRT(II)	.	12.20	12.10	9.60	9.30
202	5.0	.0	ACRT(I)	11.50	12.20	12.00	10.30	9.80
203	5.0	.0	ACRT(IV)	12.40	12.60	12.70	.	.
204	5.0	.0	A65(b)	11.80	.	.	.	.
205	5.0	.0	AM(36)	.	12.10	.	.	.
206	5.0	.0	AM(29)	.	.	.	.	.
207	5.0	.0	AM(18)	.	.	.	.	.
208	5.0	.0	AM(20)	.	.	.	.	.
209	5.0	.0	AM(12)	.	.	.	.	.
210	5.0	.0	AM(10)	.	.	.	.	.
211	5.0	.0	A40(A)	.	.	.	9.50	9.20
212	5.0	.0	A59(c)	.	.	12.10	.	.
213	5.0	.0	A176(c)	.	.	11.90	.	.
214	5.0	.0	A69	.	.	10.20	.	.
215	5.0	.0	M57(2)	12.00	12.20	12.30	9.10	.
216	5.0	.0	M32(2)	.	.	.	.	.
217	5.0	.0	M29(2)	.	.	.	.	.
218	5.0	.0	M(A)	.	12.40	12.50	9.70	9.60
219	5.0	.0	M29:CXXXV	.	.	12.80	.	.
220	5.0	.0	M47(2)	.	12.30	11.50	10.50	.
221	5.0	.0	M46	.	.	12.10	.	.
222	5.0	.0	M35(3)	.	.	.	.	.
223	5.0	.0	M35(2)	.	.	.	.	9.90
224	5.0	.0	M57(1)	.	.	.	.	.
225	5.0	.0	M59	.	.	11.40	.	.
226	5.0	.0	M55	.	.	11.30	.	.
227	5.0	.0	M40:CXXIV	.	.	.	.	9.50
228	5.0	.0	MLNO#3	.	.	.	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
229	5.0	.0	ML99	.	.	.	.	.
230	5.0	.0	ML98	.	10.90	11.60	8.30	8.30
231	5.0	.0	ML97	10.90	11.50	.	.	.
232	5.0	.0	ML94	.	11.70	11.40	.	8.70
233	5.0	.0	ML93	.	.	.	.	.
234	5.0	.0	ML91	.	11.80	11.80	9.00	.
235	5.0	.0	ML89	.	.	.	.	.
236	5.0	.0	ML87	.	.	.	.	.
237	5.0	.0	ML86	.	12.00	.	.	9.50
238	5.0	.0	ML5c	.	.	10.70	9.00	8.40
239	5.0	.0	ML82	.	.	.	.	.
240	5.0	.0	ML79	.	.	.	.	.
241	5.0	.0	ML80	.	10.90	.	8.60	8.60
242	5.0	.0	ML85	10.50	12.10	.	.	.
243	5.0	.0	ML95	.	.	.	.	.
244	5.0	.0	ML90	.	.	.	.	.
245	5.0	.0	aO11sc40	.	.	.	.	.
246	5.0	.0	aO11sc54	.	.	.	.	.
247	5.0	.0	aO14 36	.	.	.	.	.
248	5.0	.0	bQ12 194	.	.	.	.	.

RAW DATA - Right MXMD

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
1	1.0	2.0	5773-6	.	.	.	.	.
2	1.0	2.0	5773-12	10.77	.	.	.	.
3	1.0	2.0	5773-15	.	.	.	.	.
4	1.0	2.0	5773-21	.	.	9.61	.	.
5	1.0	2.0	5773-28	.	9.26	.	.	.
6	1.0	2.0	5773-32	.	.	.	.	.
7	1.0	2.0	5773-34	9.18	8.63	9.51	6.50	.
8	1.0	2.0	5773-40	8.23	9.50	10.23	.	.
9	1.0	2.0	5773-41	.	.	.	.	.
10	1.0	2.0	5773-54	.	.	.	5.87	6.36
11	1.0	2.0	5773-56	7.92	.	10.23	.	.
12	1.0	2.0	5773-70	.	9.28	9.73	6.95	6.24
13	1.0	2.0	5773-87	.	.	.	.	.
14	1.0	2.0	5773-92	.	.	.	.	.
15	1.0	2.0	5773-126	9.29	9.30	10.21	5.89	7.06
16	1.0	1.0	5773-4	.	.	.	.	.
17	1.0	1.0	5773-7	10.44	10.46	6.60	.	.
18	1.0	1.0	5773-8	9.88	9.88	10.19	6.60	6.63
19	1.0	1.0	5773-17	.	.	.	.	.
20	1.0	1.0	5773-22	.	.	.	.	.
21	1.0	1.0	5773-26	.	.	.	.	.
22	1.0	1.0	5773-29	.	.	.	.	.
23	1.0	1.0	5773-46	.	.	.	.	.
24	1.0	1.0	5773-58	8.82	9.04	9.84	5.56	.
25	1.0	1.0	5773-73	8.38	10.37	10.83	6.87	6.94
26	1.0	1.0	5773-75	.	.	.	.	.
27	1.0	1.0	5773-77	.	.	.	.	.
28	1.0	1.0	5773-99	.	.	.	.	.
29	1.0	1.0	5773-101	.	.	.	.	.
30	1.0	1.0	5773-113	.	10.00	.	.	.
31	1.0	1.0	5773-117	7.86	.	.	.	.
32	1.0	1.0	5773-123	.	.	.	.	.
33	1.0	1.0	5773-131	.	.	11.09	6.62	7.05
34	1.0	1.0	5773-134	8.38	.	.	.	.
35	1.0	1.0	5773-136	.	.	.	.	.
36	1.0	1.0	5773-139	.	.	.	.	.
37	1.0	.0	5773-47	.	.	.	.	.
38	2.0	2.0	BOG1	.	8.40	10.40	6.90	6.80

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
39	2.0	2.0	BOG3	8.70	.	.	.	.
40	2.0	2.0	BOG8	9.70	10.30	11.10	7.00	6.70
41	2.0	2.0	TYBRIND	.	.	10.00	.	.
42	2.0	2.0	STROBY A	.	.	.	.	.
43	2.0	2.0	STROBY C	.	.	10.50	6.30	7.20
44	2.0	2.0	GONGE 7	7.80	9.90	11.00	7.20	6.15
45	2.0	2.0	SKATEA3	9.75	8.50	9.60	6.05	5.90
46	2.0	2.0	SKATEA4	9.55	10.00	10.00	6.70	.
47	2.0	2.0	SKATEA35	8.40	.	.	.	.
48	2.0	2.0	SKATEA59	8.65	9.30	10.50	6.40	6.40
49	2.0	2.0	SKATEA61	9.20	10.50	.	.	.
50	2.0	2.0	SKATEB14	.	.	.	.	.
51	2.0	2.0	SKATEB22	8.50	11.40	11.80	7.35	8.20
52	2.0	1.0	BOG5	8.30	9.70	10.70	6.60	7.40
53	2.0	1.0	BOG14	10.70	.	.	.	.
54	2.0	1.0	BOG15	8.90	10.40	11.20	.	.
55	2.0	1.0	BOG19A	8.70	9.70	10.30	6.50	6.60
56	2.0	1.0	BOG19C	8.90	10.10	10.70	6.30	6.90
57	2.0	1.0	SEJRO	9.50	9.60	10.40	6.30	7.00
58	2.0	1.0	STROBY D	8.40	10.40	.	6.80	7.20
59	2.0	1.0	SKATEA2	9.10	11.45	.	.	.
60	2.0	1.0	SKATEA5	8.40	10.90	11.30	6.80	.
61	2.0	1.0	SKATEA7	.	.	.	.	.
62	2.0	1.0	SKATEA22	.	.	.	.	.
63	2.0	1.0	SKATEA41	.	.	.	.	.
64	2.0	1.0	SKATEA51	.	.	.	.	.
65	2.0	1.0	SKATEA53	9.00	9.40	10.00	6.70	7.00
66	2.0	1.0	SKATEB2	.	.	.	.	.
67	2.0	.0	BOG7	.	11.00	.	.	.
68	2.0	.0	STROBY B	.	.	11.20	.	.
69	2.0	.0	STROBY E	.	.	10.30	.	.
70	2.0	.0	SKATEA8	.	.	.	.	.
71	2.0	.0	SKATEA45	.	.	.	.	.
72	2.0	.0	SKATEA47	.	.	11.60	7.25	7.35
73	2.0	.0	SKATEA56-	.	10.00	11.20	6.50	7.40
74	2.0	.0	SKATEB3	8.85	10.80	9.80	7.30	7.40
75	2.0	.0	SKATEB5	.	.	.	.	.
76	2.0	.0	SKATEB6	.	.	.	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
77	2.0	.0	SKATEB9	8.00	9.80	10.35	6.80	7.10
78	2.0	.0	SKATEB10a	.	.	.	.	.
79	2.0	.0	SKATEB11	10.50	10.15	11.70	.	7.60
80	2.0	.0	SKATEB12a	7.90	.	.	.	.
81	2.0	.0	SKATEB15	10.80	.	.	.	.
82	3.0	2.0	TEV1	.	9.10	10.00	.	.
83	3.0	2.0	TEV2	9.50	8.10	9.30	6.10	6.00
84	3.0	2.0	TEV3	9.50	8.20	10.00	5.80	5.80
85	3.0	2.0	TEV9	9.00	9.20	10.00	6.30	6.60
86	3.0	2.0	TEV10	.	11.00	10.90	7.00	6.80
87	3.0	2.0	HOED1	9.00	9.50	9.50	.	.
88	3.0	2.0	HOED8	.	11.00	10.90	7.60	.
89	3.0	1.0	TEV4	9.00	9.00	10.00	6.20	6.90
90	3.0	1.0	TEV7	8.40	9.60	.	.	.
91	3.0	1.0	TEV8	9.00	10.10	10.30	.	.
92	3.0	1.0	TEV11	9.60	10.10	10.00	.	.
93	3.0	1.0	TEV13	8.70	10.10	10.10	6.70	6.30
94	3.0	1.0	TEV16	9.90	10.90	11.40	6.50	7.30
95	3.0	1.0	HOED5	10.60	10.80	.	.	.
96	3.0	1.0	HOED6	.	9.10	10.40	.	.
97	3.0	1.0	HOED9	9.30	9.30	10.60	6.40	6.80
98	4.0	2.0	OFNET 2481	.	8.00	9.00	6.10	6.20
99	4.0	2.0	OFNET 2486	.	8.70	10.50	6.00	6.90
100	4.0	2.0	OFNET 2487	.	9.50	10.30	6.80	7.00
101	4.0	2.0	OFNET 2501	.	.	.	.	.
102	4.0	2.0	OFNET 2477	7.50	9.40	10.20	6.50	6.50
103	4.0	2.0	OFNET 2488	8.10	9.40	10.00	5.80	6.00
104	4.0	2.0	OFNET 1822	8.80	9.70	11.10	6.80	6.70
105	4.0	2.0	OFNET 2504	.	.	10.70	.	.
106	4.0	2.0	OFNET 2490	8.20	8.90	10.50	6.00	6.70
107	4.0	2.0	OFNET 2504	8.70	8.90	.	6.10	.
108	4.0	1.0	OFNET 2484	8.90	10.00	11.20	6.90	.
109	4.0	1.0	OFNET 2493	8.90	9.90	10.80	7.50	6.90
110	4.0	1.0	OFNET 2496	.	9.80	11.20	6.90	7.00
111	4.0	1.0	OFNET 2475	7.10	8.50	.	.	.
112	4.0	.0	OFNET 2474	.	.	.	.	.
113	4.0	.0	OFNET 2505	.	.	.	.	.
114	4.0	.0	OFNET 2476	8.90	9.10	10.90	6.00	7.10

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
115	4.0	.0	OFNET 2492	.	.	11.30	.	.
116	5.0	2.0	AVIII?	.	.	.	.	.
117	5.0	2.0	A173(1)	9.50	10.40	10.50	6.50	7.50
118	5.0	2.0	AV	8.70	.	9.10	5.80	.
119	5.0	2.0	A(Y)	.	.	.	.	.
120	5.0	2.0	AIV	.	9.90	10.90	6.50	7.20
121	5.0	2.0	A:C3	9.00	10.70	.	6.50	7.10
122	5.0	2.0	AVII	.	.	9.30	6.50	.
123	5.0	2.0	AXVI	.	.	.	.	.
124	5.0	2.0	M19	.	9.80	9.80	6.20	.
125	5.0	2.0	M12	.	.	.	.	.
126	5.0	2.0	M60	.	9.10	10.80	.	.
127	5.0	2.0	M16:CXXXIX	.	9.20	.	.	7.10
128	5.0	2.0	MY	.	.	10.80	.	.
129	5.0	2.0	M25(a):CXXX	8.60	9.50	9.70	6.60	.
130	5.0	2.0	A(A)	.	.	.	.	.
131	5.0	2.0	A63	.	.	.	.	.
132	5.0	2.0	A35	8.50	.	.	.	.
133	5.0	2.0	A1	.	.	.	.	6.50
134	5.0	2.0	A42	.	.	.	.	.
135	5.0	2.0	A40	9.40	8.70	9.20	6.20	7.20
136	5.0	2.0	A32	.	.	10.10	.	.
137	5.0	2.0	A64(a)	8.90	10.00	10.00	6.10	6.90
138	5.0	2.0	A27	.	.	.	.	.
139	5.0	2.0	AK	.	.	.	.	.
140	5.0	2.0	AX111	.	.	.	.	.
141	5.0	2.0	MXXXI	.	.	.	.	.
142	5.0	2.0	MB:CXIX	.	.	.	.	.
143	5.0	2.0	M6:CXXVIII	.	.	10.20	6.20	6.70
144	5.0	2.0	M28:CXXXV	8.90	10.40	10.50	6.70	7.00
145	5.0	2.0	M53(2)	.	.	.	.	.
146	5.0	2.0	ML4c	.	.	.	.	.
147	5.0	2.0	ML3c	.	9.10	10.00	.	.
148	5.0	1.0	AZ	.	.	.	.	.
149	5.0	1.0	MT	8.80	10.00	10.10	6.40	6.80
150	5.0	1.0	MW	9.20	.	.	.	.
151	5.0	1.0	MXXXII	.	10.00	10.70	7.20	7.50
152	5.0	1.0	M5	8.30	9.60	10.00	6.40	6.50

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
153	5.0	1.0	M3	10.00	10.20	11.00	6.30	7.00
154	5.0	1.0	MXLI	.	.	.	.	.
155	5.0	1.0	A:CVI	8.80	10.60	11.20	6.60	7.10
156	5.0	1.0	A(Z)	.	9.80	10.50	6.50	7.20
157	5.0	1.0	AS	.	.	10.00	6.40	.
158	5.0	1.0	A175	9.20	10.70	10.50	6.90	7.40
159	5.0	1.0	AXXV(E)	.	.	.	.	7.20
160	5.0	1.0	A(O)	7.50	.	.	.	.
161	5.0	1.0	A176(e)	9.10	10.00	.	6.80	6.70
162	5.0	1.0	AU	9.60	10.00	10.60	6.40	7.20
163	5.0	1.0	AA	9.20	9.60	11.00	7.00	.
164	5.0	1.0	AXV	.	.	.	.	6.80
165	5.0	1.0	AIII	.	9.20	10.20	7.00	7.40
166	5.0	1.0	AQ	.	.	.	.	.
167	5.0	1.0	AXIV	.	.	.	.	.
168	5.0	1.0	A45	9.40	.	.	6.60	.
169	5.0	1.0	A44	.	10.20	.	.	6.60
170	5.0	1.0	AM(1)	.	.	.	.	.
171	5.0	1.0	A25	.	10.00	10.00	6.30	6.80
172	5.0	1.0	A29	7.70	.	9.60	6.40	6.50
173	5.0	1.0	A174	.	9.50	10.80	.	7.50
174	5.0	1.0	M18	.	.	11.00	.	.
175	5.0	1.0	MZ	.	10.60	10.70	6.40	7.10
176	5.0	1.0	M32	.	10.30	9.90	.	.
177	5.0	1.0	M27(2)	.	11.10	.	.	.
178	5.0	1.0	MT	8.80	9.50	10.20	6.40	6.90
179	5.0	1.0	MA	10.60	11.10	.	.	.
180	5.0	1.0	M3	9.20	10.20	10.50	6.00	6.40
181	5.0	1.0	M14:CXXI	9.20	10.50	.	.	7.10
182	5.0	1.0	MV:CXXVII	.	10.30	10.60	6.80	7.70
183	5.0	1.0	M56	.	.	.	6.00	6.80
184	5.0	1.0	M53	8.20	.	.	9.50	6.40
185	5.0	1.0	M:CXLI(2)	9.50	.	.	7.10	.
186	5.0	1.0	M20:CXX	.	10.00	11.00	6.60	7.40
187	5.0	1.0	M16:CXXXIX	.	.	.	.	6.80
188	5.0	1.0	MXXXII	.	10.10	10.90	7.10	7.40
189	5.0	1.0	MXXV(2)	.	.	.	.	.
190	5.0	1.0	MD	9.00	10.60	.	.	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
191	5.0	1.0	ML1c	.	9.10	9.50	.	.
192	5.0	1.0	ML2c	7.50	9.20	10.30	6.00	6.00
193	5.0	.0	M1	8.60	10.00	10.20	6.70	.
194	5.0	.0	M40:CXXIV(b	9.80	10.10	10.30	6.70	6.80
195	5.0	.0	A(N)	.	.	9.50	9.60	.
196	5.0	.0	A176(a)	.	10.20	11.30	6.50	7.10
197	5.0	.0	A(L)	.	10.30	10.20	6.50	7.00
198	5.0	.0	A176	.	.	.	.	.
199	5.0	.0	A177(a)	.	.	11.10	7.00	7.40
200	5.0	.0	A61(2)	.	.	.	.	.
201	5.0	.0	A61(4)	.	.	.	.	.
202	5.0	.0	A60(1)	.	10.20	10.50	6.50	.
203	5.0	.0	A60(2)	9.60	10.30	.	.	.
204	5.0	.0	A62(6)	.	.	.	.	.
205	5.0	.0	A62(5)	.	.	.	.	.
206	5.0	.0	AD(2)	.	9.60	.	6.10	6.80
207	5.0	.0	ACRT(V)	10.00	10.00	11.10	6.20	7.00
208	5.0	.0	ACRT(IV)	9.10	11.00	11.10	.	.
209	5.0	.0	ACRT(I)	9.10	10.00	10.00	6.70	6.50
210	5.0	.0	ACRT(II)	.	9.60	10.60	7.00	7.00
211	5.0	.0	A65a/b	8.90	.	.	.	.
212	5.0	.0	A43	9.10	9.60	10.20	.	.
213	5.0	.0	AM(38)	8.70	9.80	10.50	.	.
214	5.0	.0	AM(36)	.	11.40	.	.	.
215	5.0	.0	AM(35)	.	10.50	.	.	.
216	5.0	.0	AM(29)	.	.	.	.	.
217	5.0	.0	AM(20)	.	.	.	.	.
218	5.0	.0	AM(18)	.	.	.	.	.
219	5.0	.0	AM(12)	.	.	.	.	.
220	5.0	.0	AM(10)	.	.	.	.	.
221	5.0	.0	A40(A)	.	.	.	6.50	6.80
222	5.0	.0	A69	.	.	11.40	.	.
223	5.0	.0	A67(a)	.	.	.	.	.
224	5.0	.0	A59(c)	.	.	11.20	.	.
225	5.0	.0	A176(c)	.	.	9.90	.	.
226	5.0	.0	A(W)	.	11.10	.	.	.
227	5.0	.0	M29:CXXXVII	.	.	11.10	.	.
228	5.0	.0	M47(2)	.	9.00	11.10	7.70	.

	country	sex	siteid#	rightm3	rightm2	rightm1	rightp2	rightp1
229	5.0	.0	M46	.	.	11.00	.	.
230	5.0	.0	M35(3)	.	10.30	.	.	.
231	5.0	.0	M35(2)	.	.	.	.	7.30
232	5.0	.0	M57	.	.	.	.	.
233	5.0	.0	M59	.	.	10.80	.	.
234	5.0	.0	M55	.	.	10.50	.	.
235	5.0	.0	M57(2)	10.20	9.00	10.50	6.10	.
236	5.0	.0	M32(2)	.	.	.	.	.
237	5.0	.0	M29(2)	.	.	.	.	.
238	5.0	.0	M(A)	.	10.10	10.30	6.80	.
239	5.0	.0	MLNO#3	.	.	.	.	.
240	5.0	.0	ML99	.	.	.	.	.
241	5.0	.0	ML98	.	9.70	10.60	5.50	6.10
242	5.0	.0	ML97	7.60	9.10	.	.	.
243	5.0	.0	ML94	.	9.60	10.50	.	6.90
244	5.0	.0	ML93	.	.	.	.	.
245	5.0	.0	ML91	.	9.50	10.50	6.40	.
246	5.0	.0	ML89	.	.	.	.	.
247	5.0	.0	ML87	.	.	.	.	.
248	5.0	.0	ML86	.	9.50	.	.	6.90
249	5.0	.0	ML5c	.	.	10.00	6.50	6.50
250	5.0	.0	ML82	.	.	.	.	.
251	5.0	.0	ML79	.	.	.	.	.
252	5.0	.0	ML80	.	8.70	.	6.30	6.00
253	5.0	.0	ML85	8.30	10.00	.	.	.
254	5.0	.0	ML95	.	.	.	.	.
255	5.0	.0	ML90	.	.	.	.	.
256	5.0	.0	a011sc56	.	.	.	.	.
257	5.0	.0	aP12sc168	.	.	.	.	.