

Secondary sex estimation using morphological traits from the cranium and mandible: application to two Merovingian populations from Belgium

Supplementary information

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As part of our study, individuals from the T.3, T.57 and T.110 burials were all sexed during the primary estimation with a minimum reliability of 95%. The individual T.3 was estimated as female with the DSP2 and the Brůžek methods. Individuals T.57 and T.110 obtained an indeterminate result with DSP2 and were estimated female using Brůžek’s method. In F. Limbourg’s research, these three individuals were sexed with DSP2, with a minimum reliability of 95%.

Regarding individual T. 3, F. Limbourg took the “PUM” and “SCOX” measurements, which we did not take due to the poor condition of the bone. A notable difference between the “SPU” measurements is also observed, with 36 mm in F. Limbourg’s study (table S1) versus 24 mm in ours (table S2). As a result, we estimated the left and right coxal bone as female (table S2), while F. Limbourg found the sex to be male (table S1). We also estimated both sides of the coxal bone as female using Brůžek’s method (table S3).

<i>Obs</i>	<i>Lat.</i>	<i>PUM</i>	<i>SPU</i>	<i>DCOX</i>	<i>IIMT</i>	<i>ISMM</i>	<i>SCOX</i>	<i>SS</i>	<i>SA</i>	<i>SIS</i>	<i>VEAC</i>	<i>PF</i>	<i>PM</i>	<i>Sex</i>
<i>Br 3</i>	?	72.00	36.00	215.00	46.00	108.00	145.00	68.00	77.00	35.00	54.00	0.0002	0.9998	Male

Table S1. Results of DSP2 measurements (Brůžek et al., 2017) taken as part of F. Limbourg’s study (Limbourg, 2014) on the coxal bones of individual T.3 from Braives (in mm).

<i>ID</i>	<i>Lat.</i>	<i>PUM</i>	<i>SPU</i>	<i>DCOX</i>	<i>IIMT</i>	<i>ISMM</i>	<i>SCOX</i>	<i>SS</i>	<i>SA</i>	<i>SIS</i>	<i>VEAC</i>	<i>Prob(F)</i>	<i>Prob(M)</i>	<i>Sex</i>
<i>T.3</i>	Right	N/A	24	215	46	106	N/A	72	81	35	52	0.97	0.03	Female
<i>T.3</i>	Left	N/A	N/A	218	N/A	108	N/A	74	86	36	52	0.96	0.04	Female

Table S2. Results of DSP2 measurements (Brůžek et al., 2017) taken as part of our study on the coxal bones of individual T.3 from Braives (in mm).

<i>ID</i>	<i>Lat.</i>	<i>PrSu1</i>	<i>PrSu2</i>	<i>PrSu3</i>	<i>GrSN1</i>	<i>GrSN2</i>	<i>GrSN3</i>	<i>CArc</i>	<i>InfP1</i>	<i>InfP2</i>	<i>InfP3</i>	<i>IsPu</i>	<i>Prob(F)</i>	<i>Prob(M)</i>	<i>Sex</i>
<i>T.3</i>	Right	F	F	F	F	I	F	F	M	I	F	F	1	0	Female
<i>T.3</i>	Left	F	F	F	F	I	F	F	N/A	N/A	N/A	N/A	1	0	Female

Table S3. Results of the scoring of characters on the coxal bones (Brůžek, 2002) taken as part of our study on individual T.3 from Braives.

Regarding individual T. 57, F. Limbourg took measurements for “PUM” and “DCOX”, which we again did not take due to the poor state of the bone. There is again a notable difference between the values of the “IIMT” and “ISMM” measurements: for the former, we have 42 mm for the right coxal bone and 44 mm for the left (table S5), while F. Limbourg recorded a length of 33 mm (table S4). For the second measurement, we noted 108 mm (table S5) and F. Limbourg 160 mm (table S4) (which is “out of range for ISMM”). As a result, F. Limbourg obtained the sex as male with DSP2 (table S4) while we obtained the sex as indeterminate (table S5). On the other hand, we obtained the sex as female with Brůžek’s method (table S6).

<i>Obs</i>	<i>Lat.</i>	<i>PUM</i>	<i>SPU</i>	<i>DCOX</i>	<i>IIMT</i>	<i>ISMM</i>	<i>SCOX</i>	<i>SS</i>	<i>SA</i>	<i>SIS</i>	<i>VEAC</i>	<i>PF</i>	<i>PM</i>	<i>Sex</i>
<i>Br 57</i>	?	79.00	25.00	250.00	33.00	160.00	N/A	61.00	67.00	37.00	56.00	0.0000	1.0000	Male

Table S4. Results of DSP2 measurements (Brůžek et al., 2017) taken as part of F. Limbourg’s study (Limbourg, 2014) on the coxal bones of individual T.57 from Braives (in mm).

<i>ID</i>	<i>Lat.</i>	<i>PUM</i>	<i>SPU</i>	<i>DCOX</i>	<i>IIMT</i>	<i>ISMM</i>	<i>SCOX</i>	<i>SS</i>	<i>SA</i>	<i>SIS</i>	<i>VEAC</i>	<i>Prob(F)</i>	<i>Prob(M)</i>	<i>Sex</i>
<i>T.57</i>	Right	N/A	27	N/A	42	108	N/A	65	68	36	52	0.27	0.73	Indeterminate
<i>T.57</i>	Left	N/A	26	N/A	44	108	N/A	67	74	35	53	0.66	0.34	Indeterminate

Table S5. Results of DSP2 measurements (Brůžek et al., 2017) taken as part of our study on the coxal bones of individual T.57 from Braives (in mm).

<i>ID</i>	<i>Lat.</i>	<i>PrSu1</i>	<i>PrSu2</i>	<i>PrSu3</i>	<i>GrSN1</i>	<i>GrSN2</i>	<i>GrSN3</i>	<i>CArc</i>	<i>InfP1</i>	<i>InfP2</i>	<i>InfP3</i>	<i>IsPu</i>	<i>Prob(F)</i>	<i>Prob(M)</i>	<i>Sex</i>
<i>T.57</i>	Right	I	I	N/A	F	I	I	F	F	I	F	N/A	0.99	0.01	Female
<i>T.57</i>	Left	M	M	N/A	F	F	F	F	F	I	F	F	0.99	0.01	Female

Table S6. Scores obtained for the coxal bone characters (Brůžek, 2002) in our study on individual T.57 from Braives.

Finally, with regard to individual T. 110, F. Limbourg obtained the sex as male with DSP2 (table S7); while our result was indeterminate for both the left and the right coxal bone (table S8). The values for the different measurements are fairly close, with the exception of “IIMT” where there is a significant difference, with 50 mm in F. Limbourg’s study (table S7) versus 41 mm in ours (table S8). F. Limbourg also took the “SPU” measurement (which we did not take) and which is considered “out of range for SPU” (table S7). This was with Brůžek’s method, which assigned the left and right coxal bone to the female sex (table S9), so that we estimated the individual as female.

<i>Obs</i>	<i>Lat.</i>	<i>PUM</i>	<i>SPU</i>	<i>DCOX</i>	<i>IIMT</i>	<i>ISMM</i>	<i>SCOX</i>	<i>SS</i>	<i>SA</i>	<i>SIS</i>	<i>VEAC</i>	<i>PF</i>	<i>PM</i>	<i>Sex</i>
<i>Br 110</i>	?	N/A	39.00	187.00	50.00	N/A	130.00	65.00	N/A	36.00	52.00	0.0017	0.9983	Male

Table S7. Results of DSP2 measurements (Brůžek et al., 2017) taken as part of F. Limbourg’s study (Limbourg, 2014) on the coxal bones of individual T.110 from Braives (in mm).

<i>ID</i>	<i>Lat.</i>	<i>PUM</i>	<i>SPU</i>	<i>DCOX</i>	<i>IIMT</i>	<i>ISMM</i>	<i>SCOX</i>	<i>SS</i>	<i>SA</i>	<i>SIS</i>	<i>VEAC</i>	<i>Prob(F)</i>	<i>Prob(M)</i>	<i>Sex</i>
<i>T.110</i>	Right	N/A	N/A	N/A	N/A	N/A	N/A	68	71	35	51	0.769	0.231	Indeterminate
<i>T.110</i>	Left	N/A	N/A	187	41	102	131	68	73	35	53	0.168	0.832	Indeterminate

Table S8. Results of DSP2 measurements (Brůžek et al., 2017) taken as part of our study on the coxal bones of individual T.110 from Braives (in mm).

<i>ID</i>	<i>Lat.</i>	<i>PrSu1</i>	<i>PrSu2</i>	<i>PrSu3</i>	<i>GrSN1</i>	<i>GrSN2</i>	<i>GrSN3</i>	<i>CArc</i>	<i>InfP1</i>	<i>InfP2</i>	<i>InfP3</i>	<i>IsPu</i>	<i>Prob(F)</i>	<i>Prob(M)</i>	<i>Sex</i>
<i>T.110</i>	Right	F	F	N/A	N/A	N/A	N/A	F	N/A	N/A	N/A	N/A	0.996	0.004	Female
<i>T.110</i>	Left	F	F	F	F	F	F	F	N/A	N/A	N/A	N/A	1	0	Female

Table S9. Scores obtained for the coxal bone characters (Brůžek, 2002) in our study on individual T.110 from Braives.

References

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