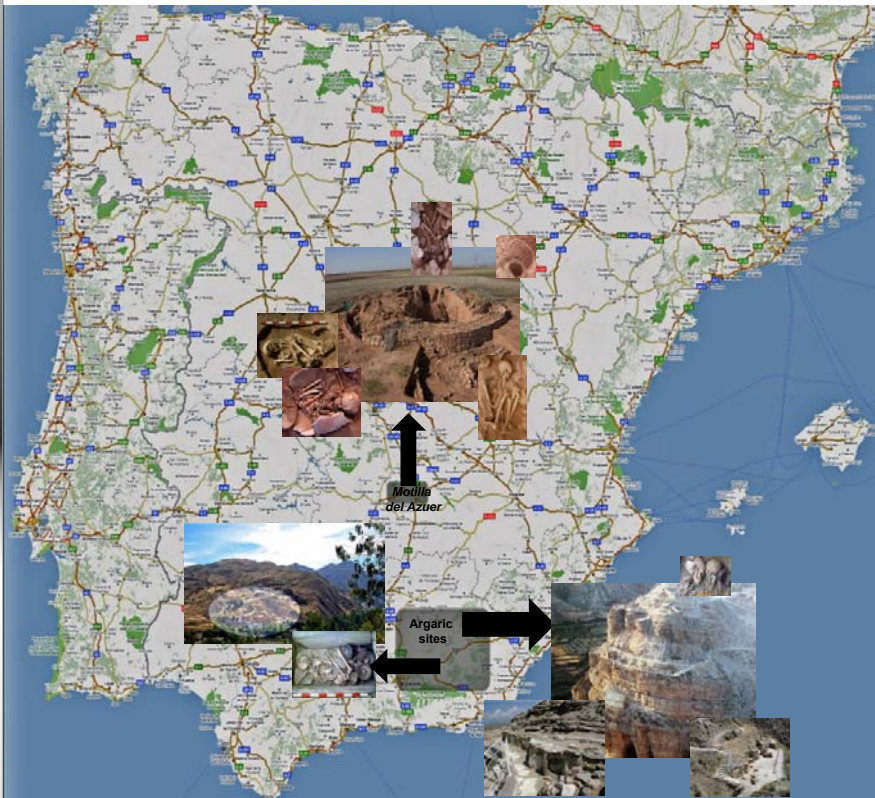


# MUSCULOSKELETAL MARKERS IN THE BRONZE AGE POPULATION FROM MOTILLA DEL AZUER (DAMIEL, CIUDAD REAL, SPAIN)

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The first aim of this study was to analyze 15 MSM in a sample of 34 individuals (25 males and 9 females) over 20 years old from the Bronze Age (2200-1400 BC) site of Motilla del Azuer (Daimiel, Spain) to obtain some information about activity patterns.

The site is an artificial hillock raised on a plain, compound of central fortress with three walled enclosures around and a village outside expands over a range of 50 m from walls. The houses built on oval and rectangular ground plans, beneath them, tombs were placed and all has funeral offers. The extensive cereals cultivation combined with livestock raising were possibly the principal economic activities. The village position and its fortress denote an important role of managing and controlling the economic resources of the environment.

These results were compared with those obtained from individuals of the El Argar culture (Bronze Age).

The Argar Culture (Province of Granada) was one of the most important Bronze Age phenomena in the Western Mediterranean (1700–1200 BC). Populations lived in small villages on top of steep hills (rugged terrain) dominating fertile valleys, and were located near mineral resources. The economy was based on livestock raising and herding, agriculture, and mining (mixed economy). The tombs were single or double, and were situated below the dwellings.

The presence of grave goods denoted a class structured society, and the goods varied according to the sex of the individual. The sample contained 83 individuals from six sites in the Granada province: Cuesta del Negro, Cerro de la Encina, Cerro de la Virgen, Terrera del Reloj, Fuente Amarga and Castellón Alto.

The MSM studied were selected according to the procedures proposed in Al Oumaoui et al. (2004)

MSM	♂ Motilla		P	♀ Motilla		P	♂ Argar		P			
	%	%		%	%		%	%				
Scapula	54.55	32.14	1.70	0.19	25.00	16.67	0.02	0.88	44.12	25.00	2.61	0.11
Pectoralis major muscle	71.05	58.54	0.86	0.35	50.00	22.58	1.58	0.21	66.67	43.06	5.53	0.02*
Teres major muscle	34.29	42.50	0.24	0.62	30.00	18.75	0.10	0.75	33.33	31.94	0.00	0.96
Deltoid muscle	41.67	25.00	1.69	0.19	23.08	12.90	0.15	0.70	36.73	19.72	4.29	0.04*
Olecranon	27.59	28.57	0.04	0.85	0.00	12.00	0.16	0.67	21.05	21.67	0.03	0.86
Supinator crest	60.00	54.29	0.07	0.79	25.00	18.52	0.01	0.92	54.17	30.65	5.26	0.02*
Radial tuberosity	42.42	40.00	0.002	0.97	44.44	24.14	0.57	0.45	42.86	32.81	0.71	0.40
Greater trochanter	21.05	31.03	0.18	0.67	28.57	4.17	1.43	0.23	23.08	18.87	0.02	0.89
Lesser trochanter	29.41	33.33	0.002	0.96	0.00	0.00	-	-	20.00	18.87	0.04	0.85
Linea aspera	57.58	25.64	6.31	0.01*	7.14	6.90	0.37	0.54	42.55	17.65	7.39	<0.01*
Supero-anterior face	75.00	53.57	1.72	0.19	14.29	16.67	0.21	0.64	61.29	39.13	2.81	0.09
Tibial tuberosity	18.18	31.43	0.96	0.33	0.00	8.00	0.11	0.74	15.79	21.67	0.21	0.65
Popliteal line	51.85	36.36	0.89	0.34	0.00	11.11	0.07	0.79	40.00	25.00	0.02	0.87
Achilles tendon	80.00	76.67	0.001	0.98	54.55	21.88	2.74	0.10	72.22	48.39	0.03	0.86
Spur	18.18	24.14	0.03	0.87	18.18	12.50	0.001	0.97	18.18	18.03	0.07	0.79

Bone	Markers
Scapula	1 Enthesophytes on triceps insertion muscle
	2 Cortical defect in attachment of pectoralis major muscle (Fig. 1)
Humerus	3 Cortical defect in attachment of teres major muscle
	4 Roughened and raised area in attachment of deltoid muscle (Fig.2)
Radius	5 Radial tuberosity (biceps muscle attachment) (Fig.7)
	6 Olecranon (triceps muscle insertion)
Ulna	7 Supinator crest (attachment of supinator muscle) (Fig. 3)
	8 Enthesophytes on greater trochanter
Femur	9 Enthesophytes on lesser trochanter (Fig. 8)
	10 Enthesophytes on linea aspera (Fig.4)
Patella	11 Supero-anterior face (quadriceps tendon attachment). (Fig. 5)
	12 Popliteal line (soleal muscle attachment)
Tibia	13 Tibial tuberosity (patellar ligament)
	14 Achilles tendon attachment
Calcaneus	15 Attachment of abductor <i>hallucis</i> and <i>flexor digitorum brevis</i> tendons (spur) (Fig. 6)

Males have similar MSM development between the upper and lower extremities, while females show greater development in upper limbs, although this is generally lesser than in males. That could indicate a sexual division of activities, with the females working in domestic settings.

Males show the only significant difference in the marker of the femoral *linea aspera* (Fig. 4). While females show no differences. The total population denote significant differences in the marker of *pectoralis* major muscle (Fig. 1), deltoid muscle (Fig.2), supinator muscle (Fig. 3), and highly significant in the marker of the femoral *linea aspera*.

These results suggest that the lifestyle of the two populations is similar.

