


















## Article

# The Digitization of Human Skeletal Collections: New Challenges and Perspectives

Maria Giovanna Belcastro <sup>1,\*</sup>, Rita Sorrentino <sup>1,\*</sup>, Davide Mameli <sup>1</sup>, Annalisa Pietrobelli <sup>2</sup>,  
Teresa Nicolosi <sup>3</sup>, Valentina Mariotti <sup>1</sup>, Carla Figus <sup>3</sup>, Elisa Lodolo <sup>4</sup>, Laura Forni <sup>4</sup>, Stefano Ratti <sup>4</sup>,  
Antonio Rosas <sup>5</sup>, Luis Francisco Ríos Frutos <sup>6,7</sup>, Antony Colombo <sup>8,9</sup>, Melania Maglio <sup>10</sup>, Lucia Martini <sup>10</sup>,  
Gregorio Marchiori <sup>10</sup>, Gianluca Giavaresi <sup>10</sup> and Milena Fini <sup>10</sup>

- <sup>1</sup> Dipartimento di Scienze Biologiche, Geologiche e Ambientali (BiGeA), University of Bologna, Via Selmi 3, 40126 Bologna, Italy; davide.mameli3@unibo.it (D.M.); valentina.mariotti@unibo.it (V.M.)
  - <sup>2</sup> Department of Human Origins, Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, 04103 Leipzig, Germany; annalisa\_pietrobelli@eva.mpg.de
  - <sup>3</sup> Department of Cultural Heritage, University of Bologna, Via degli Ariani 1, 48121 Ravenna, Italy; teresa.nicolosi2@unibo.it (T.N.); carla.figus3@unibo.it (C.F.)
  - <sup>4</sup> Cellular Signalling Laboratory, Anatomy Centre, Department of Biomedical and Neuromotor Sciences (DIBINEM), University of Bologna, Via Irnerio 48, 40126 Bologna, Italy; elisa.lodolo2@unibo.it (E.L.); stefano.ratti@unibo.it (S.R.)
  - <sup>5</sup> Paleoanthropology Group, Museo Nacional de Ciencias Naturales—Consejo Superior de Investigaciones Científicas (CSIC), 28006 Madrid, Spain; arosas@mncn.csic.es
  - <sup>6</sup> Departamento de Antropología, Sociedad de Ciencias Aranzadi, Zorroagaina 11, 20014 Donostia-San Sebastián, Spain
  - <sup>7</sup> Unidad de Antropología Física, Departamento de Biodiversidad, Ecología y Evolución, Facultad de Ciencias Biológicas, Universidad Complutense de Madrid, José Antonio Novais 12, 28040 Madrid, Spain
  - <sup>8</sup> Université Bordeaux-Montaigne, CNRS, Archéosciences Bordeaux, 6034 Pessac, France; antony.colombo@ephe.psl.eu
  - <sup>9</sup> Ecole Pratique des Hautes Etudes (EPHE), PSL University, 75014 Paris, France
  - <sup>10</sup> IRCCS Istituto Ortopedico Rizzoli, Surgical Sciences and Technologies, Via di Barbiano 1/10, 40136 Bologna, Italy; lucia.martini@ior.it (L.M.); gregorio.marchiori@ior.it (G.M.); gianluca.giavaresi@ior.it (G.G.); milena.fini@ior.it (M.F.)
- \* Correspondence: mariagiovanna.belcastro@unibo.it (M.G.B.); rita.sorrentino2@unibo.it (R.S.)  
† The authors contributed equally to this work.



Academic Editor: Giovanni E. Gigante

Received: 24 September 2025

Revised: 14 November 2025

Accepted: 15 November 2025

Published: 19 November 2025

**Citation:** Belcastro, M.G.; Sorrentino, R.; Mameli, D.; Pietrobelli, A.; Nicolosi, T.; Mariotti, V.; Figus, C.; Lodolo, E.; Forni, L.; Ratti, S.; et al. The Digitization of Human Skeletal Collections: New Challenges and Perspectives. *Heritage* **2025**, *8*, 488. <https://doi.org/10.3390/heritage8110488>

**Copyright:** © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## Abstract

Human skeletal remains are a crucial source for understanding biocultural and evolutionary processes. Yet, their study and management are challenged by social, religious, and political factors, placing them in a ‘grey area’ within cultural heritage. Human skeletal collections often carry colonial legacies, raising ethical concerns and new challenges for research, curation, and public engagement in academic and museum institutions. In this context, digitization offers expanding opportunities for public exhibition and definition of human remains as part of our culture, while ensuring long-term preservation. Virtual approaches serve also as a useful tool to investigate human variability from evolutionary, bioarchaeological, and forensic perspectives. Moreover, digital access fosters interdisciplinary collaboration and research by enabling global scholarly engagement beyond physical limitations. Through the CHANGES project, we have initiated the digitization of the Documented Human Osteological Collections (DHOC) of the University of Bologna—one of Italy’s largest collections—making these resources available via the 3D data repository MorphoSource. This contribution provides updates on newly digitized material and reports on access requests received to date. We conclude by considering the emerging responsibilities of anthropologists in the use of virtual human skeletal collections, promoting best practices for the management of the anthropological digital twins.

**Keywords:** documented skeletal collections; human remains; museum; ethics in anthropology; virtual database; Italian legislation on human remains; digital twins

## 1. Introduction

Human skeletal collections play a pivotal role in anthropological research, providing valuable insights into evolutionary, bioarchaeological, and forensic contexts by reconstructing the biology, behaviour, and cultural practices of past populations (e.g., references [1–3]).

Among these resources, documented human skeletal collections (for sex, age-at-death, cause of death, etc.) hold particular scientific significance alongside important ethical considerations. They were massively assembled primarily in anthropological and anatomical museums and laboratories between the mid-19th and 20th centuries, when Physical Anthropology was born in Europe, pursuing a classificatory and racial approach [4]. Still, documented human skeletal collections continue to be assembled and expanded worldwide [5–7]. The provenance of these skeletal remains is varied, including exhumations, scientific expeditions, exchanges, and donations, but also involving more problematic practices such as looting, theft, plunder, and, in some cases, homicide [6,8,9]. In western contexts, many of these collections were formed through cemetery exhumations or by collecting unclaimed human remains [10]. The latter is the case of the human skeletal collection held at the University of Bologna (Italy), recently designated as the Documented Human Osteological Collection (DHOC) [11,12].

In Italy, in the last years, the management of human skeletal collections—across research, education, and museum display—has presented a series of critical issues that place these remains within a complex and contested “grey area” [4].

Several interrelated factors contributing to this problematic status are common to the scientific community:

- The skeleton, in its materiality, often evokes immaterial and symbolic meanings, as evidenced by the diverse cultural practices associated with death and commemoration, since prehistoric times [13].
- Human remains represent the identity and collective memory among the living [14–16].
- These collections were often gathered within a scientific framework shaped by racial, Eurocentric, and colonialist paradigms, when museum institutions facilitated the diffusion of a Western-centred world view interest for the “others” [14–16]—a phenomenon defined as “helicopter science” [16–22]—resulting in the provenance of many collections from non-Western contexts.
- In Italy, in particular, the definition of human remains as cultural heritage remains ambiguous [23], leaving unresolved issues concerning ownership and stewardship.

In Europe, the transformative impact and democratization of cultural heritage were promoted by the Faro Convention of the Council of Europe (2005) [24] ratified in Italy in 2020 (<https://www.gazzettaufficiale.it/eli/id/2020/10/23/20G00152/sg>; accessed on 28 August 2025). The Faro Convention involves people recognizing the cultural heritage, as reflective of their identity and memory, and remembrance are intended as an evolving social and cultural process [25]. These principles are well-expressed in the conceptual lens of the Authorized Heritage Discourse (AHD) [26] that renounces elitist cultural narratives and draws attention to the notions and conceptions of heritage held by marginalized peoples, communities and cultures [27], while challenging traditional models of heritage governance and demanding new ethical and methodological approaches within national and international frameworks, including those set by UNESCO.

As a result, the study, management, access, and display of human remains have become central issues in both academic research and museum practice, calling for new ethical standards and interdisciplinary collaborations. The debate over these issues had already emerged in northern Europe, especially during the 1990s, concerning the repatriation of human remains and cultural items to Indigenous communities (e.g., after the enactment of the federal law NAGPRA in 1990 concerning the Protection and Repatriation of cultural items and human remains of the Native Americans). Indeed, several post-colonial countries began to advocate for the right to curate and protect their own heritage and cultural identity as early as the late 1960s and 1970s [26]. This debate has prompted a critical re-evaluation of the origins, uses, and ethical implications of historical skeletal collections. Increasing attention has been directed toward questions of provenance, consent, and cultural sensitivity, particularly in relation to collections assembled during colonial and post-colonial periods [27]. Italy engaged later and more gradually in the debate over those issues ([28] and references herein). Recent efforts have been made by the Italian Ministry of Culture (MiC 2022) [29], as well as by the Italian Anthropological Association (AAI) that was equipped with an interdisciplinary thematic working group in 2023. The reason for this delay can be explained based on some widespread traditions in Italy, such as the Catholic church not being concerned with the archeological excavation of necropolises, the practice of visiting and viewing human relics in churches, making them familiar to the majority of Italian people (although unverified) [4]. We can also factor in the underestimated responsibility of the Italian colonial policies and the low social awareness of the meaning of colonial science [30].

In the late 1990s, the onset of Virtual Anthropology (VA) opened a new scientific landscape offering unprecedented opportunities in both anthropological research and museum contexts. Even though the theoretical bases of the geometry of nature were laid by D'Arcy Wentworth Thompson (1860–1948), VA represented a sort of scientific revolution, parallel to the one of paleogenomics to study the past human genetic variability, occurring in the same years. The application of VA has enabled researchers to go beyond what was observable through traditional morphometry alone, supporting the development of geometric morphometrics, which quantifies shape differences among organisms [31–35]. Besides biological anthropological studies, this new approach was rapidly applied to the context of virtual restoration, conservation, and museum display and exhibition.

Within this framework, and thanks to the CHANGES project (Cultural Heritage Active Innovation for Sustainable Society, Recovery and Resiliency Plan Italian project CHANGES), financed by the European Union, we initiated the digitization of the DHOC to ensure its virtual conservation and accessibility, while raising new management reflections on its future role [36]. Particularly, Spoke 6 (<https://www.fondazionechanges.org/spoke-6/>; accessed on 14 November 2025) focuses on sustainable and participatory management of cultural heritage, promoting knowledge sharing and innovative conservation practices. It integrates scientific and humanistic methods to analyze and manage complex heritage data, fostering a virtuous cycle between historical analysis and conservation actions. The digitisation of the DHOC at the University of Bologna falls under these objectives, contributing to digital documentation, accessibility, and sustainable management of bio-cultural heritage. In addition, the virtual DHOC is the unique collection having both the original skeletons and their digital copy—a few other collections of complete skeletons (NMDID and SVAD) are only virtual [37,38].

Previous independent research focusing on human evolution and modern human variability has generated hundreds of virtual acquisitions of the bones from the DHOC [39–49]. Either recent project funded by the European Union Horizon Europe research and innovation programme—Marie Skłodowska-Curie Actions (H2020-MSCA-IF-GF-2019, BABY PACE, grant agreement: n.886380, P.I. Antony Colombo; HORIZON-MSCA-2022-PF-GF,

RISEN, grant agreement: n.101108385, P.I. Carla Figus; HORIZON-MSCA-2024-PF-01-01, STAND UP, grant agreement: 101203131, P.I. Annalisa Pietrobelli) have created DHOC's anthropological digital replicas. However, data collected previously were not made available online to facilitate scientific reuse and, more importantly, were not systematically accompanied by metadata. Within the CHANGES project, we created a digitization community to collect and archive the already digitized bones, while providing relevant biological and scanning information of the related individuals/scanned bones.

Then, here we present the updated digitization project of the "Virtual database of the DHOC of the Certosa Cemetery of Bologna" (Virtual DHOC), which now includes additional entries, and provide an assessment of the impact resulting from the dissemination of already available 3D data on a broad scientific audience.

### *DHOC*

The DHOC comprises 425 mostly complete and well-preserved human skeletons, belonging to individuals of known sex and age-at-death (from fetus to 91 years), including name, birth and death dates (between 1898 and 1944) and locations, occupation, cause of death, and information about relatives and spouses, when available. Records indicate that these skeletons mainly belong to less affluent citizens whose remains were unclaimed by their families for a period of ten years [11,50]. It is housed at the Department of Biological, Geological and Environmental Sciences of the University of Bologna, incorporated within the newly established Museum System of the University of Bologna (SMA—<https://sma.unibo.it/en/the-university-museum-network/anthropological-collection/anthropological-collection>, accessed on 28 August 2025) as part of its scientific collections. The collection has long constituted a foundational resource in anthropological research and has been extensively employed in teaching and educational contexts, especially after the paradigmatic shift in anthropology refuting typological and racial models toward more holistic, biocultural, and population-based approaches. It has significantly contributed to advancing knowledge of functional and adaptive skeletal anatomy within evolutionary and biocultural frameworks [39–44].

The dual status—as both a scientific and educational resource and a museum asset—requires particular attention for its preservation [51] and offers a critical opportunity to translate and disseminate research developments within the public sphere, fostering engagement with a broad and diverse audience through the application of virtual approaches. Nonetheless, the creation of anthropological virtual twins also entails considerable challenges and responsibilities, particularly in balancing scholarly and public-facing objectives, ensuring the long-term maintenance of the virtual collection.

## **2. Materials and Methods**

A subset of the physical human remains of the DHOC has been selected to be digitized and included in the Virtual DHOC. This digital data, together with detailed metadata (both biological information and virtual acquisition parameters), were made available on the online repository MorphoSource under the project "Virtual database of the DHOC of the Certosa Cemetery of Bologna". MorphoSource (based at Duke University, in the United States) was selected because it provides a reliable and stable platform for uploading, storing, and maintaining databases of 3D models, all managed under the guidance of the collection's institutional and scientific overseers. Its popularity within the research community, combined with dependable data storage, guaranteed long-term access and management, made it an ideal choice. Additionally, the platform does not charge any fees for data storage or access.

### 2.1. Virtual Acquisition

Anthropological digital replicas of DHOC consist of Computed Tomography (CT) scans, micro-Computed Tomography (microCT) scans, 3D models derived by micro-CT or Ct scans or acquired through structured light scanning.

Data were generated thanks to a partnership with several facilities: Laboratory of Biological Anthropology, Department of Biological, Geological and Environmental Sciences, University of Bologna (Artec Space Spider structured light scanner, manufacturer: Artec 3D, Senningerberg, Luxembourg); BONES Lab, Department of Cultural Heritage—University of Bologna (Artec Space Spider structured light scanner, manufacturer: Artec 3D, Senningerberg, Luxembourg); X-ray computed tomography lab, Department of Physics and Astronomy, University of Bologna (microCT scanner assembled in-house); Radiology Unit and Surgical Sciences and Technologies Complex Structure, IRCCS Istituto Ortopedico Rizzoli—IOR, Bologna, Italy (GE Revolution Discovery CT dual energy, manufacturer: GE Medical Systems, Waukesha, United States; high resolution X-ray microtomograph Skyscan 1176, manufacturer: SkyScan, Kontich, Belgium); Department of Diagnostic Imaging, Santa Maria delle Croci Hospital, Ravenna, Italy (Philips Medical System, Brilliance CT 64, manufacturer: Philips Medical Systems, Cleveland, OH, USA); Center for Quantitative Imaging, The Pennsylvania State University, USA (General Electric vjtomejx L300 nano/microCT, manufacturer: Waygate Technologies, Wunstorf, Germany); TomoLab, Elettra Sincrotrone, Trieste, Italy (microCT scanner assembled in-house); Center for Clinical and Surgical Experimental and Molecular Anatomy (Anatomy Center), Department of Biomedical and Neuromotor Sciences—Università di Bologna (Philips Incisive CT 128 scanner, manufacturer: Philips Italia, Milano, Italia).

### 2.2. Access to the Virtual DHOC

Within this project, we have established a comprehensive framework for managing these sensitive digital materials, developing best practices for data sharing in collaboration with the legal office of the University of Bologna. Together with our institutional partners, we have tailored user agreements that clearly define expectations regarding the use of DHOC's anthropological digital twins. MorphoSource supports complex management requirements, including restricted access governed by contract law.

Our user agreements explicitly address issues related to ownership and access rights concerning the digitized human skeletal remains [52–54]. The management of the Virtual DHOC strictly follows the principles and guidelines of modern research ethics for the study of human remains, as recommended by national and international authorities [29,55–59]. Therefore, the handling and study of the Virtual DHOC are conducted with a respectful and ethically conscious approach, acknowledging the scientific, cultural, and social significance of these human remains.

Given that the individuals died approximately a century ago and their remains were collected decades later through routine cemetery procedures, the project recognizes the impossibility of contacting living descendants [11]. Considering the impossibility of obtaining informed consent—as promoted by the Nuremberg Code (1947) and later codified as a norm—stringent protocols, aligned with international ethical standards and guidelines [9,29,55–59], are rigorously applied to ensure that the remains receive the profound respect and meticulous care. These measures regulate physical access and the protection of sensitive personal information.

Recognizing that digitized human skeletal remains lack individual ownership, curators assume responsibility for making these resources openly accessible under non-commercial licenses (e.g., CC BY-NC).

Terms of use include conditions for image reproduction, and restrictions on 3D printing limited exclusively to educational and scientific purposes. The project team remains fully committed to handling human remains, guaranteeing that all research activities comply with the highest ethical and scientific standards.

### 3. Results

#### 3.1. Virtual DHOC Data to Date

To date (September 2025), Virtual DHOC consist of 641 media representing 172 individuals of the Certosa Cemetery of Bologna, Italy (Supplementary Table S1), which update those presented in [36]. Particularly, a total number of 421 surface 3D models, 17 CT scans and 203 micro-CT scans are now in Morphosource. In detail:

- N°49 surface 3D models of crania of adult individuals (CHANGES project);
- N°53 surface 3D models of mandibles of adult individuals (CHANGES project);
- N°77 surface 3D models of coxal bones of adult individuals (CHANGES project; MSCA RISEN);
- N°7 surface 3D models of femurs of adult and adolescent individuals (CHANGES project);
- N°44 surface 3D models of fibulae of adult individuals [41,51];
- N°50 surface 3D models of tali of adult individuals [47];
- N°52 surface 3D models of naviculars of adult individuals [50];
- N°51 surface 3D models of calcanei of adult individuals [49];
- N°27 surface 3D models of ilium of non-adult individuals (MSCA RISEN);
- N°11 surface 3D models of femur (diaphysis) of non-adult individuals (CHANGES project);
- N°17 CT of skulls (cranium and/or mandible) of non-adult individuals;
- N°8 micro-CT of tali of adult individuals [47];
- N°14 micro-CT of tali of non-adult individuals [44];
- N°11 micro-CT of calcanei of non-adult individuals [48];
- N°50 micro-CT of femur distal metaphysis of non-adult individuals (MSCA BABY PACE);
- N°43 micro-CT of radii distal metaphysis of non-adult individuals (MSCA BABY PACE; [43]);
- N°5 micro-CT of naviculars of non-adult individuals;
- N°29 micro-CT of ilium of non-adult individuals (MSCA RISEN);
- N°25 micro-CT of ischium of non-adult individuals (MSCA RISEN);
- N°18 micro-CT of pubis non-adult individuals (MSCA RISEN).

#### 3.2. Report on the Access Requests Received to Date

Since the beginning of 2025, we have received access requests for over 500 media for the DHOC's anthropological digital twins hosted on MorphoSource. These requests came from a diverse group, including undergraduate and graduate students ( $n = 18$ ), postdoctoral researchers ( $n = 5$ ), university or museum faculty/staff ( $n = 8$ ), private individuals ( $n = 2$ ), and artists ( $n = 5$ ). Access was granted by the curators who can manage the number of requests; if this number would rise, a larger committee might be appointed. In addition, access was granted only when the proposed projects fully complied with ethical principles and relevant national, EU, and international legislation. This includes adherence to the Charter of Fundamental Rights of the European Union, the European Convention on Human Rights, and the General Data Protection Regulation (GDPR—Regulation EU 2016/679). In line with the principle of data minimization, all individuals' data remain completely anonymous. Applicants were also required to follow national and international scientific guidelines for respectful handling of human remains (BABAO Guidelines, AAPA, 2003: [57,58]). Each research proposal underwent evaluation to ensure compliance with relevant scientific standards, as outlined in the Horizon Europe guidance on research

ethics in ethnography and anthropology [59]. To avoid conflicts of interest, requests from researchers working on overlapping or competing projects were carefully reviewed. For example, external researchers seeking access to identical collections for similar purposes were subject to additional scrutiny. Access was denied in cases where DHOC data (such as images, 3D models, or scans) were intended for commercial use or had the potential for such use. Requests for artistic purposes were also declined due to the current lack of clear regulatory frameworks. Additionally, access was not granted when data would be distributed to students without an associated research project, thereby ensuring responsible and ethical use of the resources.

#### 4. Discussion

Current anthropological research and museum exhibitions have been enriched by advanced 3D technologies and the application of virtual methods, valuable non-destructive techniques for the morphological and structural analysis of human remains, allowing their study without compromising their physical integrity. This non-invasive approach guarantees the reconstruction of anthropological digital twins allowing morpho-functional analyses of extinct and extant hominins [60–65], digital conservation of human remains in institutional repositories (e.g., Smithsonian 3D collections, Musée de l’Homme-MNHN) and 3D data archives (e.g., MorphoSource, The Human Fossil Record), data sharing and collaboration within the international research community [66,67], virtual exhibitions (e.g., the ‘Gebelein Man’ at the British Museum, ‘In search of life’ at the Museo Egizio in Turin) and wide accessibility to a wider audience, in further attempt to promote participative culture [54,68]. Within this context, the virtual acquisition of DHOC of the Certosa Cemetery of Bologna contributes to open science practices in anthropology, answering to the call for digitizing cultural heritage in European and Italian programmes [69,70].

Besides the advantages of the virtual technologies, their use does not completely overcome some ethical and legal issues considering the still open questions about the use and the fate of the anthropological ‘digital twins’ (Italian term commonly used to refer to digitized items, meaning digital replicas) [71,72], due to the absence of ethical and legal frameworks to date [54,73,74]. Some researchers discuss the ethical considerations and ownership of these new datasets, pointing out the lack of a consolidated agreement on essential topics like data rights and access control for digitized human skeletal remains through clearly defined terms of use agreements [54,72,73,75]. In regard to the ownership issue, there are no specific rules in Italy that regulate access to anthropological digital twins. To ensure the highest level of transparency, access to the virtual DHOC is governed by an official request in consultation with the legal offices of the University of Bologna. It has been designed to promote the sustainability of research and the appropriate use of digital specimens [36].

In addition, the handling of physical collections is not significantly different. The human skeletal remains are not clearly defined as cultural heritage. In Italy, their management is regulated by the Italian Code of Cultural and Landscape Heritage of 2004 [23] and the cemetery legislation [76]. The latter refers to the involvement of exhumed individuals in research, with restrictive procedures that may vary from one municipality to another. Collection, study, and preservation are permitted in limited cases, ensuring that respect for the deceased is prioritized over other competing interests, including the scientific ones [77].

These considerations raise important questions on how such remains should be defined, managed, and displayed within the framework of cultural heritage, both in a physical and virtual context. In this regard, current international standards—such as the ICOM Code of Ethics for Museums (2004) [78] and the UNESCO Universal Declaration on Bioethics and Human Rights (2005) [79]—emphasize the need for respectful treatment of human remains, the involvement of communities of origin, and the development of culturally

sensitive policies. These guidelines call for transparency, informed consent where possible, and dialogue with descendant or stakeholder communities, especially in cases involving colonially acquired or unethically sourced remains. For instance, the National Museums of Scotland and the British Museum have published their human remains policy, including legal procedures to transfer and retain human remains, demonstrating community involvement and sensitivity toward these materials.

The musealization practices are therefore being redefined, not only to ensure the scientific value of the collections but also to respond to broader ethical imperatives and to promote inclusive, responsible forms of heritage interpretation. Nevertheless, the public responses to the use of digital artefacts and human skeletal remains in museum settings are still being tested and evaluated [54,80,81].

In addition to museum exhibitions, the issue is central to the research field. The ethics surrounding the sharing of digitized human remains require a defined resolution of ownership and access rights. The protocols for data sharing, user permissions, and acceptable uses remain ambiguous, leading to varied practices among researchers managing digital skeletal collections [54,80]. In the case of the Virtual DHOC, user agreements specifically address these concerns by regulating access and protecting sensitive personal information within the framework of national and international scientific guidelines for the handling and use of human remains.

The high volume of access requests for DHOC's anthropological digital twins underscores the significant interest and growing recognition within the research and educational communities in utilizing digital technology to advance anthropological and cultural heritage studies, highlighting its crucial role in enabling innovative, ethical, and collaborative scientific inquiry.

The anthropological community is thus called upon to respond not only to longstanding questions but also to the emergence of new ones, taking responsibility for addressing the ethical implications of new technologies and advocating for appropriate professional codes of conduct.

Given the complexity and the need to safeguard DHOCs against emerging challenges, digitization represents an effort to apply best practices in the use and management of digital twins of human skeletal remains. This respectful approach highlights the ethical, cultural, scientific, and social dimensions of the human skeletal collections.

## 5. Concluding Remarks

This contribution shows the advancement of the ongoing digitization project of DHOC, which takes into consideration aspects ranging from the legal and ethical dimensions of the human skeletal remains within the scientific and museum contexts.

By virtually sharing the DHOC data, our driving mission is to contribute to the development of anthropological research, while also ensuring the long-term preservation and accessibility of this collection.

Thus, as biological anthropologists, who inherited this asset as others in this scientific field, we have many obligations to ensure the integrity, dignity, and privacy, and avoid their undue exploitation, guaranteeing the collection for future scholars [81]. We also still have to overcome the lack of open communication with a large audience [15,82]. We are aware that a connection between the general public and science is increasingly in crisis, posing doubts on already well-acquired knowledge (non-existence of human races, climatic crisis) and suspicions about the application and use of science and technology to health and medical treatment. The social networks largely amplify this issue.

Thus, the science and scientists are under social scrutiny, and our responsibility is to recognize past mistakes but also to affirm the evolution of science and technology that allows rectifying those failures and opening new frontiers.

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/heritage8110488/s1>. Table S1: List of adults and non-adults of the DHOC from the Certosa Cemetery of Bologna available on MorphoSource.

**Author Contributions:** Conceptualization, M.G.B., R.S., D.M., A.P., T.N., and V.M.; methodology, R.S., A.P., T.N., D.M., C.F., E.L., L.F., A.C., M.M., L.M.; investigation, M.G.B., R.S., D.M., A.P., T.N., V.M., C.F., E.L., L.F., A.R., L.F.R.F., A.C., M.M.; resources, M.G.B., S.R., L.M., G.M., G.G., and M.F.; data curation, R.S., A.P., T.N., D.M., C.F., E.L., A.C., M.M.; writing—original draft preparation, M.G.B., R.S., D.M., A.P., T.N., and V.M.; writing—review and editing, M.G.B., R.S., D.M., A.P., T.N., V.M., C.F., E.L., L.F., S.R., A.R., L.F.R.F., A.C., M.M., L.M., G.M., G.G., and M.F.; funding acquisition, M.G.B. and R.S. All authors have read and agreed to the published version of the manuscript.

**Funding:** The project is funded by the European Union—NextGenerationEU under the National Recovery and Resilience Plan (PNRR)—Mission 4 Education and research—Component 2 From research to business—Investment 1.3, Notice D.D. 341 of 15 March 2022, en: PE0000020—CUP [J33C22002850006], entitled: Cultural Heritage Active Innovation for Sustainable Society, duration until 28 February 2026.

**Data Availability Statement:** The data are available upon request from MorphoSource at <https://www.morphosource.org/projects/000610808?locale=en> (accessed on 14 November 2025).

**Acknowledgments:** The authors thank all the students, researchers, and the staff of the scanning facilities that contributed to the digitization of the DHOC.

**Conflicts of Interest:** The authors declare no conflicts of interest.

## References

- White, T.D.; Black, M.T.; Folkens, P.A. *Human Osteology*, 3rd ed.; Academic Press: San Diego, CA, USA, 2012.
- Katzenberg, M.A.; Saunders, S.R. (Eds.) *Biological Anthropology of the Human Skeleton*; Wiley-Liss: New York, NY, USA, 2000.
- Larsen, C.S. *Bioarchaeology: Interpreting Behavior from the Human Skeleton*, 2nd ed.; Cambridge University Press: Cambridge, UK, 2015.
- Belcastro, M.G.; Mariotti, V. The Place of Human Remains in the Frame of Cultural Heritage: The Restitution of Medieval Skeletons from a Jewish Cemetery. *J. Cult. Herit.* **2021**, *49*, 229–238. [[CrossRef](#)]
- Alves-Cardoso, F.; Campanacho, V. The Scientific Profiles of Documented Collections via Publication Data: Past, Present, and Future Directions in Forensic Anthropology. *Forensic Sci.* **2022**, *2*, 37–56. [[CrossRef](#)]
- Petaros, A.; Caplova, Z.; Verna, E.; Adalian, P.; Baccino, E.; de Boer, H.H.; Cunha, E.; Ekizoglu, O.; Ferreira, M.T.; Fracasso, T.; et al. Technical Note: The Forensic Anthropology Society of Europe (FASE) Map of Identified Osteological Collections. *Forensic Sci. Int.* **2021**, *328*, 110995. [[CrossRef](#)] [[PubMed](#)]
- Cattaneo, C.; Mazzarelli, D.; Cappella, A.; Castoldi, E.; Mattia, M.; Poppa, P.; De Angelis, D.; Vitello, A.; Biehler-Gomez, L. A Modern Documented Italian Identified Skeletal Collection of 2127 Skeletons: The CAL Milano Cemetery Skeletal Collection. *Forensic Sci. Int.* **2018**, *287*, 219.e1–219.e5. [[CrossRef](#)]
- Nilsson Stutz, L. Claims to the Past. A Critical View of the Arguments Driving Repatriation of Cultural Heritage and Their Role in Contemporary Identity Politics. *J. Interv. Statebuilding* **2013**, *7*, 170–195. [[CrossRef](#)]
- Caffell, A.; Jakob, T. “The Dead Teach the Living”: Ethical Considerations Concerning the Management of Collections of Human Remains in Universities. In *Ethical Approaches to Human Remains: A Global Challenge in Bioarchaeology and Forensic Anthropology*; Squires, K., Errickson, D., Márquez-Grant, N., Eds.; Springer: Cham, Switzerland, 2019; pp. 179–210. [[CrossRef](#)]
- Cardoso, H.F.V. An Ethical, Cultural and Historical Framework for Cemetery-Derived Skeletal Reference Collections. *J. Contemp. Archaeol.* **2021**, *8*, 21–52. [[CrossRef](#)]
- Belcastro, M.G.; Bonfiglioli, B.; Pedrosi, M.E.; Zuppello, M.; Tanganelli, V.; Mariotti, V. The History and Composition of the Identified Human Skeletal Collection of the Certosa Cemetery (Bologna, Italy, 19th–20th Century). *Int. J. Osteoarchaeol.* **2017**, *27*, 912–925. [[CrossRef](#)]
- Belcastro, M.G.; Pietrobelli, A.; Nicolosi, T.; Milella, M.; Mariotti, V. Scientific and Ethical Aspects of Identified Skeletal Series: The Case of the Documented Human Osteological Collections of the University of Bologna (Northern Italy). *Forensic Sci.* **2022**, *2*, 349–361. [[CrossRef](#)]

13. Pettit, P. *The Paleolithic Origins of Human Burials*; Routledge: New York, NY, USA, 2011.
14. Goldstein, L. Archaeologists and the Dead: Mortuary Archaeology in Contemporary Society. In *Reflections on Intersections of Mortuary Archaeology and Contemporary Society*; Williams, H., Giles, M., Eds.; Oxford University Press: Oxford, UK, 2016; pp. 433–451.
15. Passalacqua, N.V.; Bartelink, E.; McQuade, W.E.P.; Steadman, D.; Boyd, D.; Spradley, K.; Sauerwein, K.; Ho, R. The Development of Standards for the Ethical Use of Human Skeletal Remains for Education, Research, and Training in Forensic Anthropology. *Am. J. Biol. Anthropol.* **2025**, *186*, e70022. [[CrossRef](#)]
16. Nordstrom, N. The Immortals: Prehistoric Individuals as Ideological and Therapeutic Tools in Our Time. In *Archaeologists and the Dead. Mortuary Archaeology in Contemporary Society*; Williams, H., Giles, M., Eds.; Oxford University Press: Oxford, UK, 2016; pp. 204–232.
17. Colomer, L. The Archaeology of Ancient Jewish Burial Grounds: Between the Demands of Religion and the *Res Publica*. In *Archaeological Intervention on Historical Necropolises: Jewish Cemeteries*; Museu d'Història de Barcelona, Ajuntament de Barcelona: Barcelona, Spain, 2013; pp. 335–345.
18. Nilsson Stutz, L. More than Metaphor: Approaching the Human Cadaver in Archaeology. In *The Materiality of Death*; BAR International Series S1768; Archaeopress: Oxford, UK, 2008; pp. 19–28.
19. Swain, H. Museum Practice and the Display of Human Remains. In *Archaeologists and the Dead. Mortuary Archaeology in Contemporary Society*; Williams, H., Giles, M., Eds.; Oxford University Press: Oxford, UK, 2016; pp. 169–183.
20. Adame, F. Meaningful Collaborations Can End “Helicopter Research”. *Nature*. 2021. Available online: <https://www.nature.com/articles/d41586-021-01795-1> (accessed on 28 August 2025).
21. Nature Editorial. Nature Addresses Helicopter Research and Ethics Dumping. *Nature* **2022**, *606*, 7. Available online: <https://www.nature.com/articles/d41586-022-01423-6> (accessed on 28 August 2025). [[CrossRef](#)]
22. Haelewaters, D.; Hofmann, T.A.; Romero-Olivares, A.L. Ten Simple Rules for Global North Researchers to Stop Perpetuating Helicopter Research in the Global South. *PLoS Comput. Biol.* **2021**, *17*, e1009277. [[CrossRef](#)] [[PubMed](#)]
23. Code of Cultural Heritage and Landscape. Legislative Decree No. 42 of 22 January 2004. Available online: <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2004-01-22;421vig=> (accessed on 28 August 2025).
24. Council of Europe. Faro Convention on the Value of Cultural Heritage for Society. 2005. Available online: <https://www.coe.int/en/web/culture-and-heritage/faro-convention> (accessed on 28 August 2025).
25. Colomer, L. The Politics of Human Remains in Managing Archaeological Medieval Jewish Burial Grounds in Europe. *Nord. Kult. Tidsskr.* **2014**, *17*, 169–186. [[CrossRef](#)]
26. Smith, L. *Uses of Heritage*; Routledge: New York, NY, USA, 2006.
27. Grey, S.; Kuokkanen, R. Indigenous Governance of Cultural Heritage: Searching for Alternatives to Co-management. *Int. J. Herit. Stud.* **2020**, *26*, 919–941. [[CrossRef](#)]
28. Nicolosi, T.; Battilani, P.; Belcastro, M.G. Exploring the Current Meaning of Plaster Face Casts in Museums: The Case of Lidio Cipriani’s Facial Masks at the Anthropological Collections of the University of Bologna (Italy). *Int. J. Herit. Stud.* **2024**, *30*, 905–919. [[CrossRef](#)]
29. Ministero della Cultura (MiC). I Resti Scheletrici Umani: Dallo Scavo, al Laboratorio, al Museo. 2022. Available online: [https://ica.cultura.gov.it/wp-content/uploads/2022/06/d97b61bd3d687c20b29e8836bb5fdffb\\_I-resti-scheletrici-umani\\_28giugno.pdf](https://ica.cultura.gov.it/wp-content/uploads/2022/06/d97b61bd3d687c20b29e8836bb5fdffb_I-resti-scheletrici-umani_28giugno.pdf) (accessed on 28 August 2025).
30. Falcucci, B. *L’Impero nei Musei. Storie di Collezioni Coloniali Italiane*; Pacini Editore: Pisa, Italy, 2025.
31. Gunz, P.; Mitteroecker, P. Semilandmarks: A Method for Quantifying Curves and Surfaces. *Hystrix Ital. J. Mammal.* **2013**, *24*, 103–109. [[CrossRef](#)]
32. Mitteroecker, P.; Gunz, P.; Windhager, S.; Schaefer, K. A Brief Review of Shape, Form, and Allometry in Geometric Morphometrics, with Applications to Human Facial Morphology. *Hystrix Ital. J. Mammal.* **2013**, *24*, 59–66. [[CrossRef](#)]
33. Mitteroecker, P.; Gunz, P. Advances in Geometric Morphometrics. *Evol. Biol.* **2009**, *36*, 235–247. [[CrossRef](#)]
34. Slice, D.E. *Modern Morphometrics in Physical Anthropology*; Kluwer Academic/Plenum Publishers: New York, NY, USA, 2005.
35. Weber, G.W. Virtual Anthropology. *Am. J. Phys. Anthropol.* **2015**, *156*, 22–42. [[CrossRef](#)]
36. Sorrentino, R.; Pietrobelli, A.; Marnelli, D.; Mariotti, V.; Nicolosi, T.; Belcastro, M.G. The Virtual Database of the Documented Human Osteological Collection (DHOC) of the Certosa Cemetery of Bologna (Italy, 19th–20th Century). *Am. J. Biol. Anthropol.* **2025**, *186*, e25065. [[CrossRef](#)]
37. Berry, S.D.; Edgar, H.J. Announcement: The New Mexico Decedent Image Database. *Forensic Imaging* **2021**, *24*, 200436. [[CrossRef](#)]
38. Stull, K.E.; Corron, L.K. The Subadult Virtual Anthropology Database (SVAD): An Accessible Repository of Contemporary Subadult Reference Data. *Forensic Sci.* **2022**, *2*, 20–36. [[CrossRef](#)]
39. Pietrobelli, A.; Sorrentino, R.; Notariale, V.; Durante, S.; Benazzi, S.; Marchi, D.; Belcastro, M.G. Comparability of Skeletal Fibulae Surfaces Generated by Different Source Scanning (Dual-Energy CT-Scan vs. High Resolution Laser Scanning) and 3D Geometric Morphometric Validation. *J. Anat.* **2022**, *241*, 667–682. [[CrossRef](#)] [[PubMed](#)]

40. Milella, M.; Belcastro, M.G.; Mariotti, V.; Nikita, E. Estimation of Adult Age-at-Death from Enteseal Robusticity: A Test Using an Identified Italian Skeletal Collection. *Am. J. Phys. Anthropol.* **2020**, *173*, 190–199. [[CrossRef](#)] [[PubMed](#)]
41. Pietrobelli, A.; Sorrentino, R.; Durante, S.; Marchi, D.; Benazzi, S.; Belcastro, M.G. Sexual Dimorphism in the Fibular Extremities of Italians and South Africans of Identified Modern Human Skeletal Collections: A Geometric Morphometric Approach. *Biology* **2022**, *11*, 1079. [[CrossRef](#)]
42. Viciano, J.; Tanga, C.; D’Anastasio, R.; Belcastro, M.G.; Capasso, L. Sex Estimation by Odontometrics of Nonadult Human Remains from a Contemporary Italian Sample. *Am. J. Phys. Anthropol.* **2021**, *175*, 59–80. [[CrossRef](#)]
43. Colombo, A.; Stephens, N.B.; Tsegai, Z.J.; Bettuzzi, M.; Morigi, M.P.; Belcastro, M.G.; Hublin, J.-J. Trabecular Analysis of the Distal Radial Metaphysis During the Acquisition of Crawling and Bipedal Walking in Childhood: A Preliminary Study. *Bull. Mémoires Société D’anthropologie Paris* **2019**, *31*, 43–51. [[CrossRef](#)]
44. Figus, C.; Stephens, N.B.; Sorrentino, R.; Bortolini, E.; Arrighi, S.; Lugli, F.; Marciani, G.; Oxilia, G.; Romandini, M.; Silvestrini, S.; et al. Human Talar Ontogeny: Insights from Morphological and Trabecular Changes During Postnatal Growth. *Am. J. Biol. Anthropol.* **2022**, *179*, 211–228. [[CrossRef](#)]
45. Sorrentino, R.; Stephens, N.B.; Marchi, D.; DeMars, L.J.; Figus, C.; Bortolini, E.; Badino, F.; Saers, J.P.; Bettuzzi, M.; Boschin, F.; et al. Unique Foot Posture in Neanderthals Reflects Their Body Mass and High Mechanical Stress. *J. Hum. Evol.* **2021**, *161*, 103093. [[CrossRef](#)]
46. Figus, C.; Carlson, K.J.; Bortolini, E.; Saers, J.; Seghi, F.; Sorrentino, R.; Bernardini, F.; Vazzana, A.; Erjavec, I.; Novak, M.; et al. The Ontogeny of the Human Calcaneus: Insights from Morphological and Trabecular Changes During Postnatal Growth. *Am. J. Biol. Anthropol.* **2025**, *186*, e70007. [[CrossRef](#)]
47. Serrangeli, M.C. Morphological Variation in the Human Calcaneus: A 3D Geometric Morphometric Study. Ph.D. Thesis, University College Dublin, School of Medicine, Dublin, Ireland, 2021.
48. Sorrentino, R.; Carlson, K.J.; Orr, C.M.; Pietrobelli, A.; Figus, C.; Li, S.; Conconi, M.; Sancisi, N.; Belvedere, C.; Zhu, M.; et al. Morphological and Evolutionary Insights into the Keystone Element of the Human Foot’s Medial Longitudinal Arch. *Commun. Biol.* **2023**, *6*, 1061. [[CrossRef](#)]
49. Pietrobelli, A.; Sorrentino, R.; Benazzi, S.; Belcastro, M.G.; Marchi, D. Linking the Proximal Tibiofibular Joint to Hominid Locomotion: A Morphometric Study of Extant Species. *Am. J. Biol. Anthropol.* **2023**, *184*, e24696. [[CrossRef](#)]
50. Vidor, G.M. *Biografia di un Cimitero Italiano: La Certosa di Bologna*; Il Mulino: Bologna, Italy, 2012.
51. Caffell, A.; Roberts, C.; Janaway, R.; Wilson, A. Pressures on Osteological Collections: The Importance of Damage Limitation. In *Human Remains: Conservation, Retrieval and Analysis*; Archaeopress: Oxford, UK; Williamsburg, VA, USA, 2001; pp. 187–197.
52. De Caro, R.; Boscolo-Berto, R.; Artico, M.; Bertelli, E.; Cannas, M.; Cappello, F.; Carpino, G.; Castorina, S.; Cataldi, A.; Cavaletti, G.A.; et al. The Italian Law on Body Donation: A Position Paper of the Italian College of Anatomists. *Ann. Anat.* **2021**, *238*, 151761. [[CrossRef](#)]
53. Marvi, M.V.; Orsini, E.; Vara, G.; Fazio, A.; Neri, I.; Koufi, F.D.; Lodolo, E.; Boschetti, E.; Cocco, L.; Manzoli, L.; et al. The Anatomical Wax Collection at the University of Bologna: Bridging the Gap Between Tradition and Scientific Innovation. *Ital. J. Anat. Embryol.* **2024**, *128*, 9–16. [[CrossRef](#)]
54. Alves-Cardoso, F.; Campanacho, V. To Replicate, or Not to Replicate? The Creation, Use, and Dissemination of 3D Models of Human Remains: A Case Study from Portugal. *Heritage* **2022**, *5*, 1637–1658. [[CrossRef](#)]
55. Squires, K.; Roberts, C.A.; Márquez-Grant, N. Ethical Considerations and Publishing in Human Bioarchaeology. *Am. J. Biol. Anthropol.* **2022**, *177*, 615–619. [[CrossRef](#)] [[PubMed](#)]
56. Turner, T.R.; Wagner, J.K.; Cabana, G.S. Ethics in Biological Anthropology. *Am. J. Phys. Anthropol.* **2018**, *165*, 939–951. [[CrossRef](#)] [[PubMed](#)]
57. British Association for Biological Anthropology and Osteoarchaeology (BABAO). BABAO Code of Ethics. 2019. Available online: <https://babao.org.uk/wp-content/uploads/2024/01/BABAO-Code-of-Ethics.pdf> (accessed on 28 August 2025).
58. American Association of Physical Anthropologists (AAPA). AAPA Code of Ethics. 2003. Available online: <https://bioanth.org/wp-content/uploads/2024/02/ethics.pdf> (accessed on 28 August 2025).
59. European Commission. Guidance on Research Ethics in Ethnography and Anthropology. 2013. Available online: [https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/research-ethics-in-ethnography-anthropology\\_he\\_en.pdf](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/research-ethics-in-ethnography-anthropology_he_en.pdf) (accessed on 28 August 2025).
60. Benazzi, S.; Bookstein, F.L.; Strait, D.S.; Weber, G.W. A New OH5 Reconstruction with an Assessment of Its Uncertainty. *J. Hum. Evol.* **2011**, *61*, 75–88. [[CrossRef](#)] [[PubMed](#)]
61. DeSilva, J.M.; Holt, K.G.; Churchill, S.E.; Carlson, K.J.; Walker, C.S.; Zipfel, B.; Berger, L.R. The Lower Limb and Mechanics of Walking in *Australopithecus sediba*. *Science* **2013**, *340*, 1232999. [[CrossRef](#)]
62. Fernández, P.J.; Mongle, C.S.; Leakey, L.; Proctor, D.J.; Orr, C.M.; Patel, B.A.; Almécija, S.; Tocheri, M.W.; Jungers, W.L. Evolution and Function of the Hominin Forefoot. *Proc. Natl. Acad. Sci. USA* **2018**, *115*, 8746–8751. [[CrossRef](#)]

63. Kivell, T.L. A Review of Trabecular Bone Functional Adaptation: What Have We Learned from Trabecular Analyses in Extant Hominoids and What Can We Apply to Fossils? *J. Anat.* **2016**, *228*, 569–594. [CrossRef]
64. Shaw, C.N.; Ryan, T.M. Does Skeletal Anatomy Reflect Adaptation to Locomotor Patterns? Cortical and Trabecular Architecture in Human and Nonhuman Anthropoids. *Am. J. Phys. Anthropol.* **2012**, *147*, 187–200. [CrossRef]
65. Su, A.; Carlson, K.J. Comparative Analysis of Trabecular Bone Structure and Orientation in South African Hominin Tali. *J. Hum. Evol.* **2017**, *106*, 1–18. [CrossRef]
66. Mulligan, C.J.; Boyer, D.M.; Turner, T.R.; Delson, E.; Leonard, W.R. Data Sharing in Biological Anthropology. *Am. J. Biol. Anthropol.* **2022**, *178*, 26–53. [CrossRef]
67. Turner, T.R.; Mulligan, C.J. Data Sharing in Biological Anthropology: Guiding Principles and Best Practices. *Am. J. Phys. Anthropol.* **2019**, *170*, 3–4. [CrossRef] [PubMed]
68. Riga, A.; Mori, T.; Di Vincenzo, F.; Pasquinelli, F.; Carpi, R.; Moggi-Cecchi, J. 3D Methods for the Anthropological Cultural Heritage. In Proceedings of the International Conference “Florence Heri-Tech: The Future of Heritage Science and Technologies”; Springer International Publishing: Cham, Switzerland, 2022; pp. 15–30.
69. European Commission. Basic Principles and Tips for 3D Digitisation of Cultural Heritage. 2019. Available online: <https://digital-strategy.ec.europa.eu/en/library/basic-principles-and-tips-3d-digitisation-cultural-heritage> (accessed on 28 August 2025).
70. Central Institute for the Digitization of Cultural Heritage, Italian Ministry of Culture. National Plan for the Digitalization of Cultural Heritage 2022–2023. 2023. Available online: <https://digitalibrary.cultura.gov.it/wp-content/uploads/2023/06/PND-Executive-Summary-ENG.pdf> (accessed on 28 August 2025).
71. Margoni, T. The Digitisation of Cultural Heritage: Originality, Derivative Works and (Non) Original Photographs. 2014. Available online: <https://ssrn.com/abstract=2573104> (accessed on 28 August 2025).
72. Márquez-Grant, N.; Errickson, D. Ethical Considerations: An Added Dimension. In *Human Remains: Another Dimension*; Thompson, T., Errickson, D., Eds.; Elsevier: Amsterdam, The Netherlands, 2017; pp. 193–204.
73. Thompson, E.L. Legal and Ethical Considerations for Digital Recreations of Cultural Heritage. *Chapman Law Rev.* **2017**, *20*, 153–176. Available online: <http://digitalcommons.chapman.edu/chapman-law-review/vol20/iss1/6> (accessed on 28 August 2025).
74. Algee-Hewitt, B.F.B. Population Inference from Contemporary American Craniometrics. *Am. J. Phys. Anthropol.* **2016**, *160*, 604–624. [CrossRef]
75. Carew, R.M.; French, J.; Rando, C.; Morgan, R.M. Exploring Public Perceptions of Creating and Using 3D Printed Human Remains. *Forensic Sci. Int. Rep.* **2023**, *7*, 100314. [CrossRef]
76. National Police Mortuary Regulation, D.P.R. 12 October 1990 No. 285/90. *Gazzetta Ufficiale*. Available online: <https://www.gazzettaufficiale.it/eli/id/1990/10/12/090G0312/sg> (accessed on 28 August 2025).
77. Capasso, L.; Cesana, D.T. Collezioni Scheletriche Umane: Problemi di Ordine Etico. In *Biologia dello Scheletro: Collezioni, Studio e . . . Poesie*; Micheletti Cremasco, M., Scalfari, F., Eds.; Quaderni di Asti Studi Superiori; Diffusione Immagine Editore: Asti, Italy, 2012.
78. International Council of Museums (ICOM). *ICOM Code of Ethics for Museums*. Available online: <https://icom.museum/en/resources/standards-guidelines/code-of-ethics/> (accessed on 28 August 2025).
79. UNESCO. Universal Declaration on Bioethics and Human Rights. 2005. Available online: <https://www.unesco.org/en/ethics-science-technology/bioethics-and-human-rights> (accessed on 28 August 2025).
80. Smith, S.E.; Hirst, C.S. 3D Data in Human Remains Disciplines: The Ethical Challenges. In *Ethical Approaches to Human Remains: A Global Challenge in Bioarchaeology and Forensic Anthropology*; Squires, K., Errickson, D., Márquez-Grant, N., Eds.; Springer: Cham, Switzerland, 2019; pp. 315–346.
81. Cardoso, H.F.V.; Albanese, J.; Quintino, Y. New Challenges and Perspectives on the Long-Term Study and Curation of the Collection of Identified Human Skeletons Housed at the National Museum of Natural History and Science, Lisbon, Portugal. *Am. J. Biol. Anthropol.* **2025**, *186*, e70028. [CrossRef]
82. Rufo, F.; Belcastro, M.G. Potenzialità e Vincoli nello Studio Antropologico dei Resti Umani: Legittimità della Ricerca e Aspetti di Ordine Etico. In *Quel che Resta. Scheletri ed Altri Resti Umani come Beni Culturali*; Belcastro, M.G., Manzi, G., Moggi Cecchi, J., Eds.; Il Mulino: Bologna, Italy, 2022; pp. 163–175.

**Disclaimer/Publisher’s Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.