DANCE VIDEO TAPES AT RISK
The Dance Heritage Coalition (DHC) was founded in 1992 to address the problems that were identified by a study of the state of preservation and documentation of dance in America. Jointly commissioned by the Andrew W. Mellon Foundation and the National Endowment for the Arts, the resulting study Images of American Dance recommended the formation of an alliance of the nation’s major dance collections (1) to facilitate communication; (2) to develop national standards, policies, and priorities; and (3) to implement collaborative activities and projects in the fields of dance preservation, documentation, and access. The DHC’s mission is to make accessible, enhance, augment, and preserve the materials that document the artistic accomplishments in dance of the past, present, and future. It also now serves as a think tank and convener for the dance heritage field.

Member Organizations of the Dance Heritage Coalition

American Dance Festival
Dance Notation Bureau, Inc.
Harvard Theatre Collection, Houghton Library, Harvard University
Jacob’s Pillow Dance Festival
Library of Congress
New York Public Library for the Performing Arts, Dance Division
Lawrence and Lee Theatre Research Institute, Ohio State University
San Francisco Performing Arts Library and Museum
Anacostia Museum and Center for African American History and Culture, Smithsonian Institution

DANCE VIDEOTAPES AT RISK

As creators of the most ephemeral of the performing arts, today’s dancers and choreographers mainly rely on the use of videotape to document their works. Whether someone records a modern dance rehearsal, a tap workshop, a classical ballet performance, or a folk or ethnic community dance, videotapes provide the most stirring and enlightening, and often the only, documentation of the event. Sadly, however, the videotape medium may be almost as fleeting as the live performance captured on it, because of two vulnerabilities—deterioration and obsolescence.

To slow the deterioration of a videotape collection, both storage conditions and handling procedures must be carefully considered. Some individuals and organizations choose to place their collections in an established library or dance archive, where they can take advantage of staff expertise and a proper storage environment. If such a move is impractical or undesirable in your situation, however, adopting basic conservation practices can help minimize both the risk of loss or of damage at your own facility.

The problem of obsolescence may seem even more daunting, since rapidly changing technology threatens one videotape format and playback system after another with imminent extinction. This brochure outlines some basic steps you can take to safeguard and preserve your collection in the face of these various, ongoing challenges.
In your enthusiasm to proceed with this important work, do not act in haste. Sometimes more harm is done by inexperienced, though well-meaning hands, than by neglect. Start slowly and educate yourself to avoid irreversible blunders. If you find that your on-site expert recommends something different than stated here, get a second or third opinion. Professionals do not always agree on “best practices,” so you need to determine what is best in your individual case.

You will probably be unable to follow all of our recommendations because of inadequate space, staffing, or financial resources. The conditions outlined below are merely goals toward which to work. Do what you can, as you are able to, and continue to keep these issues “on the front burner.” It is essential to the dance community and to our nation’s cultural heritage that videotape preservation remains an institutional priority.

GETTING STARTED: LEARN ABOUT FORMATS AND TAKE AN INVENTORY

Before beginning any preservation work, you need to familiarize yourself with your collection. If you are not sure which formats you are holding, try to identify them. For a concise overview, see Sarah Stauderman’s Video Format Identification Guide (http://www.video-id.com). Other sources of format information are listed at the end of this brochure.

Your next step is to inventory your videotapes. The inventory, or shelf list, is a written list that delineates each item by title, format, number of copies, and whether it is an original or a copy. Take information from the outside of the container or cassette shell—do not play back any tapes to conduct the inventory. For large collections, where resources are insufficient to conduct full inventories, you may need to group tapes according to series, performance, or another unifying property, still carefully listing the number of items in each group.

Armed with a good inventory, a collection caretaker can start to inspect the tapes item by item, or, depending on the number of tapes, on a survey or sampling basis. These minimal steps will help to profile the collection’s physical condition, giving you a reasonable basis for the number of tapes and formats that need preservation. You can then estimate processing and copying costs for funding purposes.

The following instructions for videotape care are divided into three critical strategies:

1. Improving Storage Conditions;
2. Safe Handling and Playback; and
3. Copying and Reformating.

IMPROVING STORAGE CONDITIONS

The first line of defense in any videotape preservation plan is to provide appropriate storage conditions. Both temperature and humidity influence how quickly a tape deteriorates. The magnetic binders that coat the polyester tape base interact with moisture, as measured by relative humidity (RH) in the storage environment. Eventually hydrolysis breaks down the binders chemically, which results in a number of harmful conditions, such as oxide shedding, sticky shed syndrome, and residues (for a description of common tape problem, see Video Preservation Fact Sheet 6, Association of Moving Image Archivists, http://www.amianet.org).

Experts such as the American National Standards Institute recommend the following cool and dry conditions for the extended storage of videotape.

<table>
<thead>
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<th>Maximum Temperature</th>
<th>RH Range</th>
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<tr>
<td>68°F</td>
<td>20-30%</td>
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<tr>
<td>59°F</td>
<td>20-40%</td>
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<tr>
<td>50°F</td>
<td>20-50%</td>
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The chart indicates that cooler temperatures support higher humidity levels without causing harm. Temperatures colder than 50°F are not recommended because evidence shows that tape lubricants may then ooze to the surface. RH readings above 60% risk the development of fungus, a danger to both tapes and to people who work with them. To retard fungal growth in the storage environment, use fans to circulate air and, if necessary, use supplementary dehumidifiers, especially during the hot summer months if air conditioning is not available.

You can monitor temperature and humidity levels with a number of devices: from a $20 to $30 gauge, purchased at your local hardware store, to a thermohygrometer or hygrothermograph ($80 to $1,000 and up) purchased from a conservation equipment supplier (see list below). All are acceptable, but only the hygrothermograph provides a written record of temperature and humidity levels; with other devices, you'll need to keep your own written log.

Never keep your videotapes in a hot storage area—they may be irreversibly damaged!!

Other safe storage practices include:

- Practice “strategic dispersal” by separating copies in storage. Never store all copies of the same original in one place.

- Store tapes upright, on edge, like books on a library shelf. A tape stored horizontally for a long period of time exposes its edge to damage and distorts the tape pack (the tape wound onto the spool).

- Keep storage areas clean; eliminate as much dust and dirt as possible; and ban eating, smoking, and drinking in the storage area. Avoid materials that emit airborne particles such as carpeting, fabric fibers, and exposed insulation. Do not permit any gaseous fumes.

- Ideally, the room should be windowless and used for storage only. If not windowless, make sure that windows are covered. Never store tapes in direct sunlight. Turn lights off when not in use.

- Avoid attics and basements or other places subject to extremes of temperature and humidity, such as near radiators.

- Although erasure of taped material from stray magnetic fields is rare in storage areas, to be safe, avoid storing tapes near motors.

- Use metal rather than wooden shelving. Wood is a fire hazard because it promotes fire spread during an incident. Some woods emit harmful gases, and some hold moisture, thus allowing fungus growth.

- If possible, store the most valuable tapes in a room protected by sprinklers or a gas-based fire suppressant system.

- Store tapes in protective archival containers—these are hard shelled, dust and water resistant, and chemically inert (see list of suppliers below.) Archival containers only cost about $1.00 each, and can make a significant difference in prolonging the life of your videotapes. Avoid cardboard containers.

- Keep a minimum of three copies of each tape:
  1. the original (your archival copy and the earliest generation of a recording you own);
  2. a master (copied from the original and used to make further copies); and
  3. a reference copy (for loan and everyday use).

Always hold onto the most complete versions and the best copies. Retain additional copies only if space permits.
SAFE HANDLING AND PLAYBACK

The following procedures are intended to minimize damage to videotape from poor handling and playback practices. Abusive handling causes irreparable damage. Even under ideal conditions, playback is an inherently abrasive process, caused by friction as the tape is run along the rollers and magnetic heads.

- Make a reference copy for routine use; avoid using the original tape or only copy. Clearly label each one and, for safekeeping, store them in separate locations.
- Remove or adjust recording tabs on cassettes to prevent anyone from accidentally or deliberately erasing or recording over something valuable.
- Handle tapes or cassettes carefully at all times. Dropping a video cassette, for example, may crack the shell (the outer plastic covering of the cassette) and render the tape unplayable until it is inserted into a new shell.
- Avoid touching the tape’s surface or edge.
- Allow adequate time for tapes to reach ambient room temperature before using them, and avoid all rapid changes in temperature.
- Leave tapes wound on the take-up hub after playback, and rewind immediately before re-use. Never store tapes partially rewound or in the middle of the tape pack.
- Rewind tapes with a VCR (video cassette recorder), not a rewind machine. Periodically (once every few years), rewind any tapes that were stored under fairly poor conditions, such as prolonged exposure to high humidity. Rewind a tape immediately if you observe a problem, such as edge exposure, poor tension, pack slippage, or wavy pack (see Video Preservation Fact Sheet 6, Association of Moving Image Archivists, http://www.amianet.org, for a description of common tape problems). Whenever rewinding, proceed cautiously and observe any damage.
- Inspect tapes for dirt, fungus, residues, or other damage. If apparent, consult with a trained professional. Tape cleaning is a difficult and exacting process, which should not be attempted by untrained staff without proper equipment.
- Avoid using pause, freeze frame, or skip scan features. Use a reference copy if these functions are necessary for analysis, study, or cataloging.
- Make sure that anyone handling original recordings has proper training or is informed about appropriate procedures for playback and re-recording operations. You might wish to pass out written guidelines (such as this brochure) to anyone handling your original recordings.
- Attach labels with pertinent information (e.g., date, title, tape number, running time, master or copy) to the cassette and its protective container. An inadequately labeled tape will require playback in the future to determine its content. If it is deteriorated so badly that it can’t be played, you will not know if its contents warrant restoration. Use archival labels, available from suppliers.
- Catalog large collections according to professional descriptive standards. Essential content descriptors include the title of the work or event; the company, group, or individual name and other production credits; the date and place; and whether it is a performance, dress rehearsal, etc. Technical information might include the videographer’s name, running time, original format, tape speed for VHS, and whether in color or black and white. Contact an established archives, library, or service organization such as Independent Media Arts Preservation (IMAP, http://www.imappreserve.org) for guidance.
Playback equipment has an important role in videotape care:

- If you know what type of machine a tape was recorded on, and you have the machine, keep it! Videotape formats become obsolete so quickly that you may not be able to play the tape any other way. Be aware, however, that old equipment is difficult to maintain. Reformat and update your obsolete tapes as soon as possible.

- Ensure that playback equipment is working properly before inserting a tape. Insert a test tape before playing important ones.

- Follow manufacturer’s instructions for care and cleaning of playback equipment. Take all precautions to prevent dust and dirt from entering the tape path; these particles can scratch the tape’s surface.

- Clean tape heads between plays with cotton swabs and laboratory-grade isopropyl alcohol or a Freon cleaner when playing original or master copies. A buildup of oxide will also scratch tapes.

**COPYING AND REFORMATTING**

Copying and reformatting are essential steps in preservation. Having only a single tape of any important subject involves too many risks from deterioration, abusive handling, loss, theft, or building disasters. Reformatting is critical as older formats become obsolete. Digital remastering to DVD may seem to be the easy answer, but DVDs should be used only for reference or access copies, NOT for preservation (see page 13).

- Use new (previously unrecorded), high-quality brand name tapes when making new copies. Always record at the fastest speed; do not use extended play.

- Copy the most complete version or the earliest generation of a recording. Analog tape recordings suffer from reduced quality with each generation.

- Copy any original videotape needed for routine use, such as display, study, or loan. Always provide a reference copy in fulfilling such requests.

- To produce a new master, use a video laboratory staffed with skilled technicians and state-of-the-art equipment whenever possible.

- Update the inventory or shelf list when new copies are added.

**What should be copied first?**

Prioritize your collection for copying and reformatting purposes, and begin a systematic program for making new copies, based on available funding.

1. Intellectual (historical/cultural/institutional) value
2. State of deterioration / age
3. Format obsolescence

Look first at recordings that have the most historical, cultural, or institutional value. Those with the highest “intellectual” value that have badly deteriorated or those recorded on obsolete or unusual formats should be placed high on your priority list. Age must also be a factor. A tape older than 10 years should be considered for copying; one older than 20 years should be a definite candidate. A tape fitting all of the above criteria that is also the sole master or recording of an event should be given the highest priority.

When prioritizing, look at both physical and electronic deterioration. Physical defects include damaged containers or cassette shells, severe oxide shedding, sticky tape, stains or discoloration, the presence of dirt, residues, mold/fungus, and jamming, creases or wrinkles, and the like. Electronic defects include dropouts or signal loss manifested as poor picture or sound. Give priority to evaporated metal (ME) tapes (e.g., Hi-8)—although of high resolution, these tapes have a shorter shelf life than some other formats.
Videotape formats are considered obsolete when manufacturers no longer support them with new equipment and supplies. Although more than 60 formats have been used since Ampex introduced video recording in 1956, a much smaller number were commercially viable. Performing arts groups are most likely to encounter 1/2-inch open reel, 3/4-inch U-matic, 1/2-inch VHS, S-VHS, and Hi-8, all analog tapes that have sold widely since the 1970s. All are considered obsolete except VHS.

Digital tapes (DV, MiniDV, DVCPro) are at risk because their small size (0.25 inches in width, 7-9 microns in thickness) makes them extremely vulnerable to physical damage. It makes sense to copy them at an early opportunity.

Which formats are recommended for copying?

For technical acceptability and cost effectiveness, there are two basic rules for choosing a new video format: copy analog to analog; and copy digital to digital.

For analog recordings, your best choice is Betacam SP; a durable 1/2-inch professional format widely used in the broadcast industry. Unfortunately, however, low cost, consumer equipment is unavailable for either recording or copying onto Betacam SP, so you must use a professional laboratory. A Betacam SP master, together with a VHS or other reference copy, will ensure continued survival in a high quality format for several decades.

If you cannot afford to reformat onto Betacam SP, your only choice is to copy any at-risk videotapes onto the highest quality tape that you can afford, provide them with the best possible care, and stay in touch with technical developments in the field so you’ll be aware when a practical alternative appears. Some years from now, analog recording will no longer represent a viable choice because all video technology will have moved to digital platforms. At that time, you will be able to transfer your Betacam SPs (or other formats) to a more universal storage format that will be cost effective and relatively easy to manage as digital information.

For copying digital tapes, your best choice currently is Digi-Beta, a 1/2-inch professional format widely used in the broadcast industry. Digi-Beta, while slightly compressed, provides an extremely high quality image. Like Betacam SP, however, Digi-Beta remains prohibitively expensive for the average consumer; conversions to Digi-Beta must be done in a professional video lab. If you cannot afford to re-format to Digi-Beta, again, as with analog tapes, give your digital tapes the best possible care and remain alert to the latest developments in preservation technology.

**WARNING!**
**DVDS SHOULD NOT BE USED FOR PRESERVATION PURPOSES!**

As the cost of digital recording devices continues to fall, many people are turning to DVDs for reformatting their at-risk videotapes. For reference or access copies, DVDs are fine. As preservation copies, however, DVDs have severe limitations:

1. DVDs are highly compressed versions of the originals (unlike Digi-Beta, which is only mildly compressed); selective data is irretrievably discarded in making the new DVD copy.
2. The variety of encoding systems in use cannot assure compatibility from one machine to another, and a standard has yet to be firmly established.
3. The life span of this medium is not yet known; sufficient age testing results have not been made available to the archival community.
4. Failure of a DVD usually ends in total failure; failure of a tape, by contrast, may involve only limited portions of the tape, making other recovery techniques possible.
Digital storage devices, such as hard-drives and datatape cartridges, are not yet a viable solution for most dancers and arts organizations. At the present time, only well-funded institutions with access to specialized skills and resources can make proper use of these devices.

Following the procedures outlined above will not prolong the life of your videotapes indefinitely, but they will slow down the deterioration process while we all await a more permanent solution. As funding dollars for performing artists continue to dwindle, dancers and arts organizations often find themselves without any “extra” money for videotape preservation. But saving these collections is not a task that can be delayed indefinitely—videotapes deteriorate and become obsolete, and as they do, all traces of important dance history may be lost forever.

Dance video collectors must remain steadfast and creative in seeking grants for videotape preservation. Funds may be available for videotape preservation projects through local, state, and regional arts councils or preservation organizations. Investigate possible granting agencies in your own community. Also remember that public libraries, university libraries, or specialized dance archives may be able to provide a permanent home for original or one-of-a-kind dance videotapes.

THE FUTURE OF DIGITAL DANCE PRESERVATION

Digital Videotape Preservation Reformatting Project

Members of the Dance Heritage Coalition, as leaders in dance preservation, continue to seek the best preservation medium for dance recordings on videotape. With funds from the National Endowment for the Arts, the DHC sponsored a meeting in July 2002 at the Library of Congress, to design an experiment that would determine the most appropriate method of transferring analog videotapes to digital for preservation purposes.

In the Spring of 2003, The Andrew W. Mellon Foundation awarded funds for the project, which will determine and specify preservation file format candidates appropriate for the dance community. Information gathered in this project will formulate a nationally accepted model, in order to provide a technical foundation for those engaged in dance documentation and preservation, as well as others who use videotape to document their experiences. James Lindner, Media Matters LLC, is the Principal Investigator and Carl Fleischhauer of the Office of Strategic Initiatives, Library of Congress, is Principal Advisor. Findings will be published as they become available, at http://www.danceheritage.org.

You can learn more! Discussion of current issues regarding digital preservation can be found through web sites and electronic mailing lists, such as CoOL, listed below.

DANCE RECORDINGS ON FILM

This publication provides the most widely accepted practices for the preservation of magnetic tape only. For assistance in preserving dance on film, consult the web sites maintained by the Image Permanence Institute (http://www.rit.edu/~661www1) and by Eastman Kodak Company (http://www.kodak.com).

ADDITIONAL RESOURCES

Conservation/Preservation Organizations and Services

Dance Heritage Coalition, Washington, DC:
http://www.danceheritage.org
Telephone: 202-530-3209 or 202-530-3211

Association of Moving Image Archivists, Hollywood, CA.
Non-profit professional association fostering cooperation between individuals and organizations concerned with collection, description, preservation, exhibition and use of moving image materials. E-mail discussion group, cataloging guidelines, resource list, and lots of helpful information available on web site.
http://www.amianet.org
Telephone: 323-463-1500

American Institute for the Conservation of Historic and Artistic Works, Washington, DC
National membership organization of conservation professionals to advance the practice and promote the importance of preserving cultural property. Electronic Media Group of particular interest.
http://aic.stanford.edu
Telephone: 202-452-9545

Bay Area Video Coalition (BAVC), San Francisco, CA
Non-profit media arts center offers training, rentals, editing services, and laboratory for video copying and reformatting, especially of obsolete formats. Distributes educational materials relating to preservation of videotape recordings. Interactive training DVD entitled Playback: Preserving Analog Video available for $35.00;
http://www.bavc.org
Telephone: 415-861-3282
CoOL (Conservation Online)
Informative web site sponsored by the Preservation Department of Stanford University Libraries. Wide range of conservation information on such topics as video preservation, choosing a conservator, and pest management. Good resource lists, discussion groups, and links to related sites.
http://palimpsest.stanford.edu

Experimental Television Center, Video History Project, Binghamton, NY
Ongoing research initiative which documents video art and community television.
http://www.experimentaltvcenter.org
Telephone: 607-687-4341

Image Permanence Institute, Rochester Institute of Technology, Rochester, NY
University-based non-profit research laboratory dedicated to the preservation of recorded information (primarily film); consulting, collection surveys, and education.
http://www.rit.edu/~661/www
Telephone: 585-475-5199

IMAP (Independent Media Arts Preservation), New York, NY
Service, education, and advocacy consortium to ensure the preservation of electronic media for cultural and educational use by future generations. Helpful guidelines for cataloging video collection.
http://www.imappreserve.org
Telephone: 212-560-7259

Library of Congress, Washington, DC

SPECs Brothers, Ridgefield Park, NJ
Videotape and magnetic tape laboratory service specializing in tape cleaning, physical restoration, and disaster recovery. Informative web site relating to videotape deterioration.
http://www.specsbros.com
Telephone: 800-852-7732

Vidipax, New York, NY
Primarily a sound and video laboratory offering restoration and copying services for a variety of obsolete formats; conservation consulting and assessments also available. Web site contains detailed video format guide and extensive information relating to media preservation and restoration.
http://www.vidipax.com
Telephone: 212-363-1999

Publications


Suppliers
Art Preservation Services, New York, NY
Humidity monitoring and control devices.
http://www.apsnyc.com
Telephone: 212-722-6300

Conservation Resources, Springfield, VA
Online only: http://www.conservationresources.com
Gaylord Bros., Syracuse, NY
Full range of conservation/preservation equipment and supplies, including video storage boxes, shelving, and temperature and humidity monitors.
http://www.gaylord.com
Telephone: 1-800-634-6307

University Products, Holyoke, MA
Full range of conservation/preservation equipment and supplies, including video storage, boxes, shelving, and temperature and humidity monitors.
http://www.universityproducts.com
Telephone: 800-628-1912