Ali Pierce

2024 Spring

Capstone – Graphic Design

Department of Art and Art History

Artist Statement:
The current visual landscape is incredibly saturate. It seems like everywhere you look, there's optical stimuli fighting for acknowledgement. It's exhausting. In my design practice, I aspire to create imagery that not only grabs viewers' attention but keeps it. I catch eyes by utilizing vibrantly demanding colors and intentional secondary elements that provoke further consideration from the spectator. This can be a play on words, unique illustrations based on backstories, or analog elements like collage that are a bit out of the ordinary. When creating a poster zine detailing cardiovascular disease prevention research, I titled the primary poster "vastacular," combining the words vascular and spectacular to reiterate the positive impact of CVD deterrence. As I designed a T-shirt for United Way of Larimer County, I incorporated landmarks from their regional areas of focus into the illustration, including Horsetooth for Fort Collins, Devils Backbone for Loveland, and Dream Lake in Rocky Mountain National Park for Estes. These components invite audiences to take a closer look at my designs and reflect on the associated stories they tell. I am particularly passionate about messaging that advocated for human rights and promotes positive mental health, creating visuals that can have a deeper impact.

Title	Original Format
Figure 1: Warmth & Wonderment Gift Card	Illustrator, 11 in x 17 in
Figure 2: Warmth & Wonderment Charm Bracelet	Photoshop, 11 in x 17 in
Figure 3: Warmth & Wonderment Wrapping Paper	Illustrator, 11 in x 17 in
Figure 4: Vastacular Poster	Illustrator, 16.5 in x 23.4 in
Figure 5: Vastacular Pages	Illustrator, 16.5 in x 23.4 in
Figure 6: Spaghetti Carbonara Spread 1	InDesign, 17in x 11 in
Figure 7: Spaghetti Carbonara Spread 2	InDesign, 17in x 11 in
Figure 8: Cascadia Beer Label	Illustrator, 11 in x 17 in
Figure 9: Cascadia Beer Mockup	Photoshop, 11 in x 17 in

Figure 1: Warmth & Wonderment Gift Card

Figure 2: Warmth & Wonderment Charm Bracelet

Figure 3: Warmth & Wonderment Gift Wrap

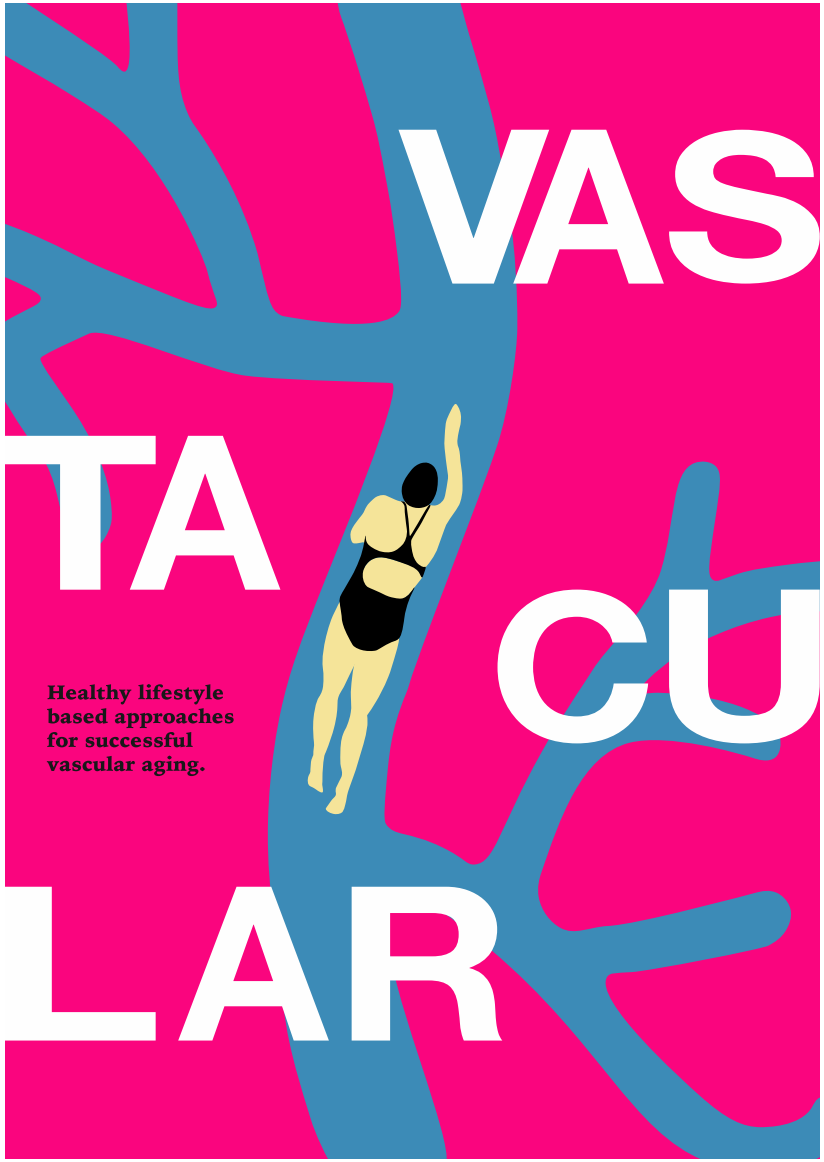

Figure 4: Vastacular Poster

Aerobic Exercise

The mechanisms by which exercise prevents or reverses vascular dysfunction with aging are multifactorial. In humans and animal models, the contribution of specific pathways to vascular dysfunction can be quantified by acutely inhibiting the pathway and evaluating the improvement in function; the greater the improvement, the greater the contribution of the pathway to the dysfunction observed without pathway inhibition (i.e., under basal conditions). This experimental paradigm has been employed to elucidate the mechanisms by which aerobic exercise preserves/restores vascular function with aging.

Lifelong aerobic exercise also favorably modulates arterial stiffness with aging in both men and postmenopausal women. Carotid-femoral pulse wave velocity (PWV) is lower and arterial compliance higher in older habitually exercising adults versus their sedentary peers, and greater physical activity levels are associated with lower carotid-femoral PWV.

Even lifelong causal exercisers (i.e., older adults exercising 2–3 days/wk for ≥20 yr) exhibit greater arterial compliance than sedentary older adults; however, a higher lifelong exercise dose of ≥4–5 days/wk appears to be necessary for preventing age-related aortic stiffening. Moreover, aerobic exercise interventions in previously sedentary adults have favorable effects on large elastic artery stiffness, although these effects are more clearly established for carotid artery compliance.

Aerobic exercise training also reverses age-related increases in inflammation. In humans, NF-κB expression is lower in biopsied endothelial cells from older aerobic exercise-trained men versus their sedentary peers. Moreover, inhibition of NF-κB signaling with 4 days of administration of the anti-inflammatory drug salsalate restores macrovascular EDD in older sedentary men to levels observed in older endurance-trained men; this effect is mediated in part by a suppression of oxidative stress. Collectively, these findings implicate an overall suppression of reactive oxygen species (ROS) and reduced inflammation as primary mechanisms by which aerobic exercise improves endothelial function.

Increased vascular stress resistance, i.e., the ability to maintain function in the presence of external stressors, is another mechanism by which regular aerobic exercise preserves/restores vascular function with aging. In support of this concept, macrovascular EDD in older adults who perform regular aerobic exercise is similar to EDD in healthy young subjects even in the presence of traditional CVD risk factors, such as elevated low-density lipoprotein cholesterol and impaired fasting glucose.

Despite the large evidence base supporting conventional aerobic exercise training (i.e., 150 min/wk of moderate-intensity exercise) for improving vascular function with aging, adherence remains low; it is estimated that only 20-50% of older adults meet current recommendations for physical activity. The reasons for low adherence are not completely understood and vary by sex, race, geography, and socioeconomic stats; however, commonly cited barriers include limited time, motivation, access to facilities, and safety. To circumvent these barriers, increasing attention is being paid to novel, time-efficient and/or easier-to-adopt strategies involving physical training or controlled exposure to environmental stress.

Determining the safety, feasibility, and efficacy of novel interventions intended to recapitulate the effects of established healthy lifestyle behaviors on healthy vascular aging, to ultimately provide preventive and therapeutic options to individuals, should be viewed as a biomedical research priority.

[Matthew J. Rossman, Thomas J. LaRocca, Christopher R. Martens, and Douglas R. Seals. highlight three alternative strategies that may be relevant to older adults in their full research study on healthy life-style based approaches for successful vascular aging.]

Cardiovascular Disease

The key intermediate event linking aging with increased risk of CVD is the development of vascular dysfunction. Although numerous adverse changes in vascular function occur with advancing age, two primary expressions of vascular aging that increase CVD risk are endothelial dysfunction and stiffening of the large elastic arteries (i.e., the aorta and carotid arteries). Importantly, healthy lifestyle behaviors such as regular aerobic exercise and certain dietary approaches favorably modulate these processes and reduce CVD risk with aging.

Regular aerobic exercise is considered a first-line strategy for preventing or reversing age-related arterial endothelial dysfunction and large elastic artery stiffening and reducing CVD risk with aging. Regular aerobic exercise is advanced as the most effective overall approach, at least in part, because it acts to preserve vascular function with aging and improves function in previously sedentary late middle-aged and older adults.

Roberto Muntoreanu's 455 graphic design students recently partnered with Colorado State University's Columbine Health Systems Center for Healthy Aging to review faculty research and construct a poster zines to represent the findings. Thomas J. LaRocca is an assistant professor and director of the Healthspan Biology Lab in CSU's Department of Health and Exercise Science. His laboratory studies the molecular biology and physiology of aging, and he is particularly interested in translational research (using laboratory science to develop practical applications or treatments that can help people). I chose to focus on LaRocca's research because of his interest in increasing human healthspans (the period of life during which we are healthy and productive).

Colorado State University's Columbine Health Systems Center for Healthy Aging – established in 2017 through a generous gift from Bob and Kitty Wilson, owners of Columbine Health Systems – offers 7,000 square feet of research, educational, and outreach space. The Center focuses on interdisciplinary research related to healthy aging, providing educational opportunities for students and evidence-based community programs. With over 80 researchers from various disciplines, the Center's mission is to unite and facilitate research teams across CSU's colleges to address the global challenge of aging.

To access the full study scan the QR code below or visit **https://doi.org/10.1152/japplphysiol.00521.2018**

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Healthy lifestyle based approaches for successful vascular aging.

Cardiovascular disease (CVD) is the leading cause of morbidity and mortality in the US and most modern societies. Advancing age is the primary risk factor for CVD, and as such, >90% of CVDs occur in middle-aged and older adults. Importantly, a new epidemic of CVD is projected in the near future as a consequence of a demographic shift toward older populations in developed nations. In the US alone, the number of older adults is expected to double by 2050; without effective intervention, it is predicted that 40% of adults in the US will have one or more forms of CVD by 2030.

All provided information is from a presentation given at the 2016 Geriontological Society of America Annual Meeting as part of the Vascular Aging Workshop. The presentation was on healthy lifestyle-based approaches for successful vascular aging and was written by Matthew J. Rossman, Thomas J. LaRocca, Christopher R. Martens, Douglas R. Seals.

(26 DEC 2018).

Figure 5: Vasctacular Pages

Figure 6: Spaghetti Carbonara Spread 1

Spaghetti CARBONARA

The sound of sizzling bacon, the smell of fresh minced garlic, the delight of grating a quality parmesan cheese block. That's what you can expect when making this fine Italian dish. In true Italian style, there is no need to wait to crack open a bottle of Pinot Grigio until dinner is served. Pour yourself a glass while you take care of preparing the ingredients. Cook your pasta al dente, pluck some fresh Parsley sprigs to top, and put some garlic bread in the oven while enjoying some Dean Martin. To further enhance this dining expereince, light some candles and dim the lights to procure an ideal atmosphere. Italian dishes are not to be eaten alone of course, so be sure to invite friends, family or a romantic interest over and be reiterate that the cuisine is "made with love." Don't worry if you have no Italian heritage, or have never been to Italy. If done right, this dish will make you feel as though you are at a quaint family-owned restaurant right in the heart of Florence— a place where carbonara is always on the menu. Be sure not to rush through your pasta. Meals are meant to be enjoyed, savored, and accompany good conversation. Have another glass of wine, reminisce on the old times, and smile all through the course. Perhaps when you are done, you prep your Moka pot to brew some fresh stovetop espresso. If you have some ice cream stached away, you could plop a scoop into a ramekin and pour some hot coffee over top for an affogato. Or, if you planned well in advance, you may have thought to bake some Tiramisu or put together some cannolis. Whatever you end up having after your meal, be sure that everyone present has had their fill before they depart. As they begin preparing to leave you may bid them farewell with a, "buona serata, grazie per essere venuti."

Figure 7: Spaghetti Carbonara Spread 2

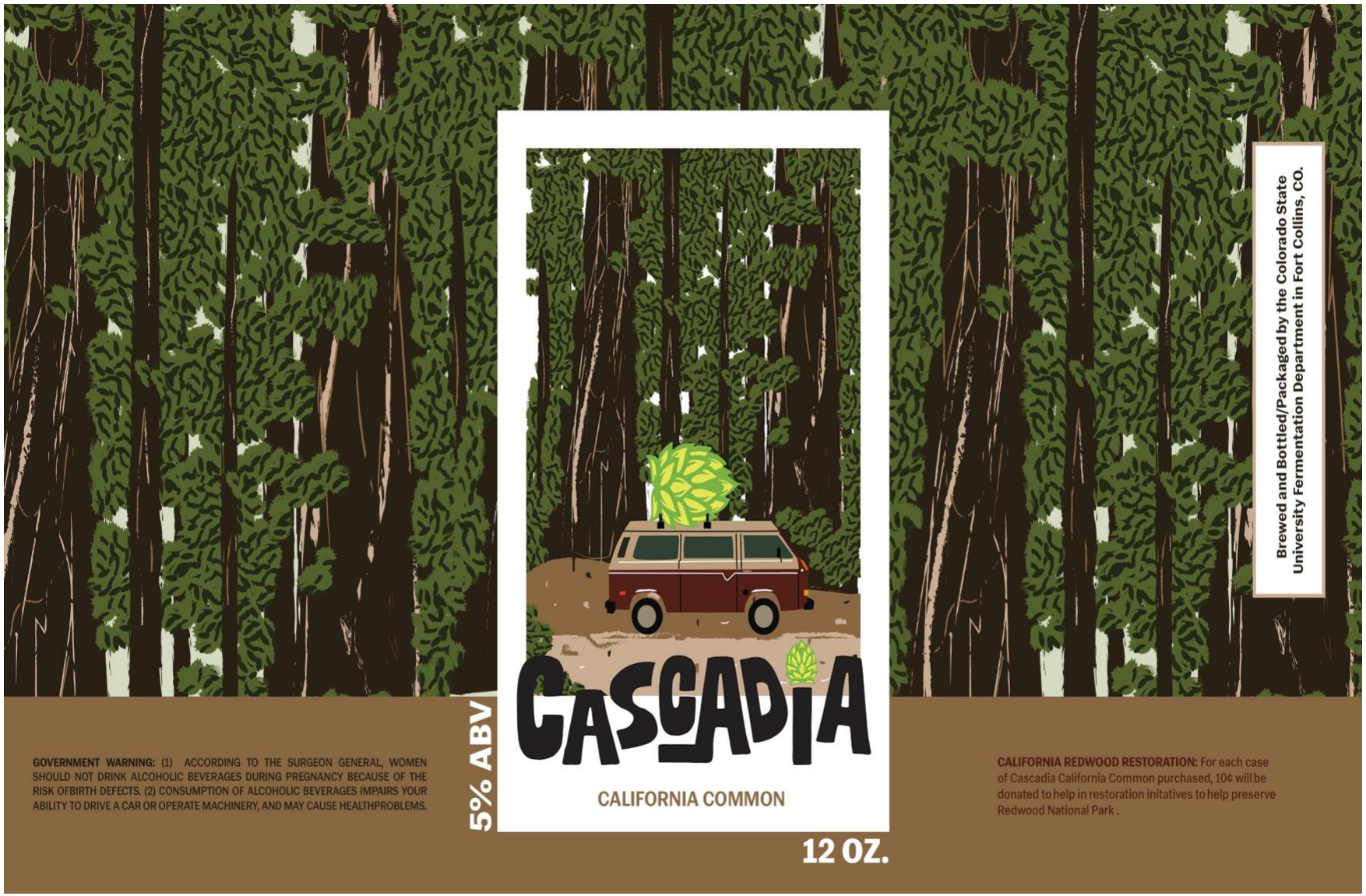

Figure 8: Cascadia Beer Label

Figure 9: Cascadia Beer Mockup