

Veterinary bone marrow aspirate models

Date: 9/19/2024

Client: Dr. McLean Gunderson

Advisor: Prof. Randy Bartels

Team:

- Avery Schuda - Co-Leader - aschuda@wisc.edu
- Helene Schroeder - Co-Leader, BSAC - hschroeder4@wisc.edu
- Anya Bergman - Communicator - ambergman2@wisc.edu
- Ella Cain - BWIG - elcain2@wisc.edu
- Ellie Kothbauer - BPAG - ekothbauer@wisc.edu

Problem Statement

Veterinary professionals commonly collect bone marrow aspirates from three main sites in dogs and cats: the iliac crest, the trochanteric fossa, and, mostly commonly, the proximal humerus. Currently no veterinary bone aspiration models exist for students to practice on, requiring the use of cadaver dogs. Cadavers can only be used for about 5-10 insertions of the Illinois bone marrow biopsy needle per site, but does not contain live bone marrow that can be collected. This project aims to create a low-cost 3D anatomically correct model of the humerus with relevant soft tissue structures, mimics the consistency and structure of the bones, and allows for insertion of "bone marrow" for collection, allowing veterinary students to practice the skill of bone marrow aspiration.

Brief Status Update

Thank you again for inviting us to the lab last Friday! We used the information gathered from our meeting to draft a Product Design Specifications (PDS) document that we will use as we begin brainstorming for the fabrication of the model. This week the team continued our research into the bone marrow aspiration procedure.

Difficulties / advice requests

Please let us know if you have any changes you would like us to make to the PDS.

Advisor	X	X													
Website															
Update	X	X	X												

*Subject to change after advisor/client meetings

Filled boxes = projected timeline

X = task was worked on or completed

Previous week's goals and accomplishments

- Team
 - First meeting with client and team where we practiced the bone marrow aspiration on a cadaver dog, were introduced to resources, and asked questions to define the project scope and desired product
 - Completed the Product Design Specifications (PDS) using research and client feedback
- Avery
 - Worked with team to update the problem statement after client meeting
 - Continued research to inform the PDS & work on PDS with team
- Helene
 - Continued research on bone marrow aspiration to understand the project more and to help when working on the PDS.
 - Worked on the PDS with the entire team.
- Anya
 - Continued researching bone marrow aspiration, and began researching current models.
 - Worked on PDS with the team.
- Ella
 - Continued researching the process of aspiration and looking at other competing veterinary aspiration models.
- Ellie
 - Worked on continuing to research bone aspiration and how it can best be modeled
 - Worked on PDS with the team

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Avery Schuda	9/18/24	- Meeting with client and team	7	7	11

		-Set up progress report and PDS for team -Further research on bone marrow aspiration procedure -Worked with team to complete the PDS			
Ellie Kothbauer	9/18/24	-Met with client along side the team -Worked on the PDS alongside teammates -Continued research to better understand aspiration models	5	5	7
Anya Bergman	9/18/24	-Met with client, advisor and team -Worked on PDS with teammates -researched for PDS and biology	5	5	7
Helene Schroeder	9/18/24	- Met with client with the team - Helped complete PDS - Researched materials used for model bones	5	5	7
Ella Cain	9/18/24	-Met with the client and the team -Worked on completing the PDS after asking the client questions -Focused research on muscle and bone models of canines to understand the anatomy of the model	5	5	7

Current design

Materials and expenses

Item	Description	Manufac-turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1										
									\$0.00	
									\$0.00	
Category 2										
									\$0.00	
									\$0.00	
								TOTAL:	\$0.00	