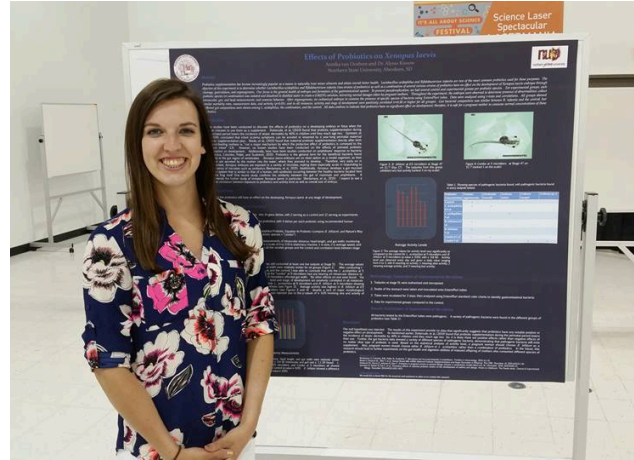


## STUDENT SPOTLIGHT

**Annika Van Oosbree** -- Northern State University  
Aberdeen, SD

Pre-med student Annika Van Oosbree is continuing her research on the benefits of probiotic supplementation. Probiotic supplementation has become increasingly popular as a means to naturally treat minor ailments and attain better overall health. In her research titled “Effects of Probiotics on *Xenopus laevis* Development”, Van Oosbree used *Lactobacillus acidophilus* and *Bifidobacterium bifidum* (two of the most common probiotics) and a combination of various species of probiotics to determine the effect on the development of *Xenopus laevis* (African clawed frog) embryos through cleavage, gastrulation and organogenesis. Throughout the experiment, the embryos were observed to determine presence of abnormalities, collect fluid pressure inside the eye, gut and head measurements and examine behavior. The outcomes showed *B. bifidum* contributed to a smaller overall embryo size and treatment should be limited or avoided. *L. acidophilus* was concluded to be the best option as a probiotic supplement as it provided benefits such as improved gut microbiota associated with this probiotic without adversely impacting the embryo.



Van Oosbree presented her research findings during three conferences and festivals including a first place prize at both the 2016 Northern State University (NSU) Undergraduate Research Forum and the 2016 South Dakota Academy of Science Undergraduate Poster Competition. An abstract of her research was published in the South Dakota Academy of Science Journal (SDASJ), and Van Oosbree is currently working on a full article with the hope of publishing in *Journal of Probiotics and Health*.

Throughout her academics, Van Oosbree has participated in an additional research study conducted on the implications of West Nile virus, served as a Senator at Large in the NSU Student Association, currently sits as the treasurer of the NSU Pre-Medical Society and is a player on the Division II NSU volleyball team where she received the Academic All-Conference award during her sophomore year.

Van Oosbree is junior at NSU pursuing a double major in biology and english with a minor in Chemistry. In January, she will begin a new stage of her research. She will be using sea urchins to study the effects of the same probiotics on the expression of the Endo16 gene, which codes for gut development.

### Effects of Probiotics on *Memphis Jeeva*

Yasmeen Ali, Othman, and The Green Room  
Northumbria University, Newcastle, UK

Probiotic supplements for horses are available in a variety of forms, including oral and injectable forms. Lactobacillus and Bifidobacterium species are two of the most common probiotics used for these purposes. The objective of this research was to determine the effects of probiotics on the growth and survival of *Memphis Jeeva* (a species of fly) in the presence of a bacterial pathogen. The experimental groups were divided into four groups: Control, Lactobacillus, Bifidobacterium, and a combination of both. The results showed that the combination of both probiotics significantly reduced the number of flies per horse and the number of flies that survived to adulthood. The results also showed that the combination of both probiotics significantly increased the number of flies that died during the experiment. The results suggest that the combination of both probiotics may be a more effective way to control fly populations on horses.




Figure 1: Image of a fly larva at Stage 1 of development.




Figure 2: Image of a fly larva at Stage 2 of development.




Figure 3: Average Activity Levels. The chart shows activity levels for four groups: Control, Lactobacillus, Bifidobacterium, and Combination. The Control group has the highest activity level, followed by the Lactobacillus group, then the Bifidobacterium group, and finally the Combination group with the lowest activity level.

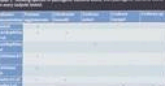


Figure 4: Number of flies per horse. The table shows the number of flies per horse for four groups: Control, Lactobacillus, Bifidobacterium, and Combination. The Control group has the highest number of flies per horse, followed by the Lactobacillus group, then the Bifidobacterium group, and finally the Combination group with the lowest number of flies per horse.

Group	Number of flies per horse
Control	15
Lactobacillus	10
Bifidobacterium	8
Combination	5

Figure 5: Number of flies that survived to adulthood. The table shows the number of flies that survived to adulthood for four groups: Control, Lactobacillus, Bifidobacterium, and Combination. The Control group has the highest number of flies that survived to adulthood, followed by the Lactobacillus group, then the Bifidobacterium group, and finally the Combination group with the lowest number of flies that survived to adulthood.

Group	Number of flies that survived to adulthood
Control	12
Lactobacillus	8
Bifidobacterium	6
Combination	4

Figure 6: Number of flies that died during the experiment. The table shows the number of flies that died during the experiment for four groups: Control, Lactobacillus, Bifidobacterium, and Combination. The Control group has the highest number of flies that died during the experiment, followed by the Lactobacillus group, then the Bifidobacterium group, and finally the Combination group with the lowest number of flies that died during the experiment.

Group	Number of flies that died during the experiment
Control	3
Lactobacillus	2
Bifidobacterium	2
Combination	1

