Acute exposure to a common suspended sediment affects the swimming performance and physiology of juvenile salmonids

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Author(s) Berli, B. I.; Gilbert, M. J. H.; Ralph, A. L.; Tierney, K. B.; Burkhardt-Holm, P.
Author(s) at UniBasel Holm, Patricia ; Berli, Barbara Isabelle ;
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To study the effects of an acute exposure to turbidity generated by suspended sediment,we examined swimmingperformance (Ucrit) and relatedmetabolic parameters in individual and groups of juvenile trout at three differentconcentrations of calciumcarbonate. To investigate differences among strains or provenience,we compared onestrain of rainbow trout (Oncorhynchus mykiss; RBT) and one strain of brown trout (Salmo trutta; BNT) from acommon hatchery and one RBT strain froma separate hatchery. In general, trout swum individually or in groupsexhibited a decrease in Ucrit as turbidity increased. Both RBT strains were more similar to each other and wereimpaired to a larger extent in swimming performance than BNT, whichwas less impacted. For groups, indicatorsof aerobic metabolism were elevated while those of anaerobic metabolism were depressed. Specifically, citratesynthase activities and glucose levels tended to be greaterwhile plasma lactate and LDH activitieswere reduced.Lactate and LDH levels in individually swum trout under sediment exposure suggest a greater similarity of fishfrom the same provenience.We suggest that acute exposures to environmentally relevant turbidities generatedby fine suspended sediment may cause a reduced Ucrit, and that these changes may be related to changes in theutilization of aerobic and anaerobic pathways

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