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Radiator Burns: A Pediatric Dilemma

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43. Scalding Potential of "Hot" Coffee Spills

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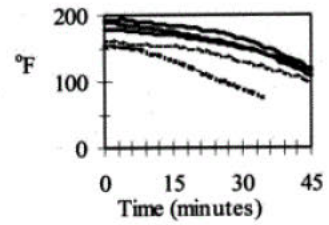
Introduction: Scalding from commercial beverages (restaurants, airplanes, homes) is a frequent cause for outpatient burn injury. As there is no evidence in the literature to document claims that these liquids are "hot", we are interested in determining the actual danger potential of commercial hot beverages in causing injury. **Methods:** Coffee was purchased from 3 commercial food establishments (—), the hospital cafeteria (·····) and a home (----). The coffee was kept in the container (+/- lid) in which it is normally sold. A thermometer was inserted after purchase and a time/temperature curve generated at one min intervals for 45min. No additives (i.e. cream/sugar) were used. A second experiment involved "spilling" 4oz of the coffee onto clothing (cotton, rayon, denim) and measuring the temperature of the liquid after penetration through the material. All curves were compared to standards for skin scald injury. **Results:** Of the five coffee samples tested, all were found to have initial temperatures > 152°F, hot enough to cause a full-thickness dermal burn from only a 2sec exposure. Coffee purchased from a popular coffee house was hottest at 193°F and dropped to only 120°F at 45min- a temperature equivalent to hot tap water. Only the home mug brewed/served at 152°F rapidly dropped to a safe 55°F after 45 min. 160°F coffee "spilled" onto clothing was cooled somewhat during absorption. The greatest drop occurred with the denim - 30° in the first minute. The others dropped only 6° at one minute. **Conclusion:** Scalding remains a frequent cause of outpatient injury in the commercial and home environment. Our investigation confirms the temperature of commercial and home brewed coffee beverages to be hot enough to cause a thermal injury when spilled even after a significant amount of time has elapsed after pouring. Clothing provides little protection from the transmission of heat after spills. **Summary:** Consumers of commercial beverages should be aware that coffee is brewed and served at temperatures potentially injurious to the skin. The insulated cups and lids currently in use in coffee houses help to maintain the coffee "hot" enough to drink but also "hot" enough to injure.



spill	initial	1 min.	10 min
cotton	160	158	106
rayon	160	154	104
denim	160	130	104

44. Radiator Burns: A Pediatric Dilemma

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Contact burns continue to be an on going problem in the pediatric population. We are a metropolitan Burn Center who admits approximately 1200 burns annually. One third of these admissions are pediatrics (Pediatrics = 14 & under). Radiator burns accounted for 59% of pediatric contact burns seen at our institution in a five month period. Therefore, we decided to look at why radiator burns occur and what can be done to help prevent them.

From January 1997 to May 1997 we admitted 17 radiator burns. 29% (5) required skin grafts; 2 required more than one procedure. Ages ranged from 7 months to 9 years. 88% (15) of the burns were under the age of 3. 82% were males, 18% were female.

Heating systems that use radiators pose a great hazard to children under the age of 5. A broader review of our statistics over the past 18 months has shown that although radiator burns occur during a "window" period (seven months per year), it is a major cause of contact burn injuries in our catchment area. Through the review of our admissions we have identified a need for implementation of a prevention program on the dangers of radiators.

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