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Good and bad freezers: the impact of pre-freeze treatment  
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In individual dogs, despite good quality of native semen, motility, morphology and acrosomes were significantly changed after thawing (1). To evaluate whether pre-freeze treatment influences post thaw quality and to find indicator for freezability, data of 250 semen protocols were retrospectively evaluated. All data were from healthy stud dogs of different breeds, aged 15-165 months, presented for semen freezing. Some samples (n= 104) were centrifuged at 750g, 5 min prior to freezing (2). The semen was collected, analysed, frozen and thawed as described by (3). Briefly, a modified Uppsala system was used for semen freezing and all samples thawed at 70°C, 8 sec. All samples were examined by means of CASA and morphology after Hancock's fixation (3). Data were sorted in centrifuged and non-centrifuged samples, and by post thaw progressive motility (P) in good (P≥50%) and bad freezers (P<50%; 3). All data are given as average values. The analysis of variance and T test were used for comparison between groups and p<0.05 was considered statistically significant. Age, semen volume, pH and sperm concentration did not differ between groups (p>0.05). When non-centrifuged, native samples were compared between good (n=94) and bad freezers (n=52), motility (M, 90.9 vs 83.8%), progressive motility (P, 85.0 vs 74.9%), Mean velocity (VAP, 105.0 vs 86.7 µm/s), Curvilinear velocity (VCL, 170.4 vs 150.8 µm/s), Linear velocity (VSL, 90.9 vs 73.4 µm/s), Linear coefficient (LIN, 53 vs 49%), Wobble coefficient (WOB, 61.8 vs 57.6%) and viability (90.7 vs 82.2%) were significantly better in good freezers (all p<0.01). The percentage of morphological aberrations was significantly lower than in bad freezers (30.6 vs 52.6%), especially acrosome (5.3 vs 7.6%) and neck abnormalities (5.8 vs 18.8%, all p<0.01). After thawing, the same motility and CASA data inclusive Mean coefficient (STR) differed significantly (M 75.9 vs 49.7%; P 64.4 vs 30.9%; VAP 78.2 vs 63.7 µm/s; VCL 124.2 vs 111.8 µm/s; VSL 69.1 vs 54.7 µm/s; LIN 56.1 vs 48.4%; WOB 63.6 vs 56.6%; STR 87.6 vs 84.7%; viability 68.1 vs 50.8%; all p<0.01) as did the percentage of morphological aberrations (total 37.7 vs 57.2%, acrosome 15.6 vs 20.2%, neck 5.0 vs 14.8%, all p<0.01). When centrifuged native samples were compared between between good (n=41) and bad freezers (n=63), motility data and morphological aberrations differed significantly (M 86.6 vs 75.5%; P 79.2 vs 65.4%; VAP 96.4 vs 72.4 µm/s; VCL 171.2 vs 132.2 µm/s; VSL 80.4 vs 59.4 µm/s; viability 90.7 vs 82.3%; morphological aberrations 27.4 vs 47.2%, acrosome 2.3 vs 4.1%, neck 5.4 vs 13.9%; all p<0.01; LIN 48.1 vs 45.4%; STR 82.7 vs 81.3%; WOB 57.1 vs 55.1%; all p<0.05). After thawing, all parameters were decreased (M 69.0 vs 41.7%; P 60.9 vs 26.0%; VAP 73.0 vs 55.5 µm/s; VCL 125.4 vs 98.9 µm/s; VSL 62.3 vs 46.3 µm/s; viability 69.2 vs 45.0%; morphological aberrations 28.7 vs 45.2%, acrosomes 8.7 vs 14.4%, neck 4.3 vs 8.8%; all p<0.01; LIN 48.0 vs 45.0%; WOB 56.3 vs 54.2%; both p<0.05). It is concluded that in native semen of both groups, centrifugation decreased motility parameters, however, less pathomorphology was seen in centrifuged than in non-centrifuged samples. In native and frozen-thawed semen, velocity, progressiveness, linearity and pathomorphology were significantly worse in bad than in good freezers, however, with less pathomorphology in centrifuged samples.