Summary of: Dried plum diet protects from bone loss caused by ionizing radiation

Key findings and quantitative results:

Bone Loss Induced by Radiation: - **Pro-osteoclastogenic Cytokines:** Expression of osteoclastogenic cytokines increased in irradiated animals. - **Osteoprotegerin (Opg):** Opg expression increased in irradiated animals. - **Osteocalcin (Nfe2l2):** Nfe2l2 expression increased in irradiated animals. - **Osteopontin (Opg):** Opg expression increased in irradiated animals. - **Monocyte Chemotactic Protein-1 (Mcp1):** Mcp1 expression increased in irradiated animals.

Radiation-Induced Bone Loss: - **Trabecular Number (Tb.N):** Decreased by 25%. - **Trabecular Separation (Tb.Sp):** Increased by 13%. - **Trabecular Thickness (Tb.Th):** Unaffected. - **Bone Volume to Total Volume (BV/TV):** Decreased by 32%.

Dried Plum (DP) Effect: - **Nfe2l2:** Prevented by DP. - **TNF-α:** Prevented by DP. - **MCP-1:** Prevented by DP. - **Opg:** Prevented by DP.

MicroCT Analysis: - **Trabecular Number (Tb.N):** Decreased by 25%. - **Trabecular Separation (Tb.Sp):** Increased by 13%. - **Trabecular Thickness (Tb.Th):** Unaffected. - **Bone Volume to Total Volume (BV/TV):** Decreased by 32%.

DHLA and Ibuprofen Effects: - **TNF-α:** Prevented by DHLA. - **MCP-1:** Prevented by DHLA. - **Opg:** Prevented by DHLA.

Space Radiation Effects: - **Protons and 56Fe:** Prevented by DP. - **Protons:** Prevented by DP. - **56Fe:** Prevented by DP.

DHLA and DP Effects on Space Radiation: - **Protons:** Prevented by DP. - **56Fe:** Prevented by DP.

Conclusion: - **Dried Plum (DP) Protects against Bone Loss:** DP prevented bone loss by reducing pro-osteoclastogenic cytokines, osteoprotegerin, and osteocalcin expression. - **DHLA and Ibuprofen:** Failed to prevent bone loss. - **Space Radiation:** DP prevented bone loss in space radiation model.

Mechanisms: - **Antioxidant Properties:** DP showed antioxidant properties. - **Radioprotective Effects:** DP protected against radiation-induced bone loss by preventing oxidative stress and osteoclastogenesis.

Implications: - **Radiation-Induced Bone Loss:** DP is effective in preventing bone loss caused by ionizing radiation. - **Space Radiation:** DP is effective in preventing bone loss in space radiation. - **Long-term Effects:** DP may provide protection against bone loss in long-duration spaceflight.